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INDEX

OF THE

Mycological Writings

OF

C. G. LLOYD.

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PREFACE.

(Binding is advised in this order.)

Index Vol. IV.

Mycological Notes, 38-41.

Synopsis of the Genus Cladoderris, July, 1913.

Synopsis of the Stipitate Stereums, December, 1913.

Synopsis of the Genus Fomes, January, 1915.

Synopsis of the Cordyceps of Australasia. March, 1915.

Synopsis of the Section Apus of the Genus Polyporus, June, 1915, Letters 39-61. (Including two No. 39.*)

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*Through an error there were two letters issued and numbered 39. The notes Nos. 24 to 28 were also numbered in duplicate. In requesting copies of these duplicate letters indicate the regular letter as No. 39. No. 39 bis refers to the letter, Fungi of Madagascar.

ABBREVIATIONS.

The following abbreviations are used in this Index:

M. N.—Mycological Notes.

Syn. Clad.—Synopsis of the Genus Cladoderris, July, 1913.

Syn. Ster.—Synopsis of the Stipitate Stereums, December, 1913.

Fom.—Synopsis of the Genus Fomes, January, 1915.

Cord. Aust.—Synopsis of the Cordyceps of Australasia, March, 1915.

Ap. Pol.—Synopsis of the Section Apus of the Genus Polyporus, June, 1915.

Let.—Letters.

603
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INDEX OF SPECIES CONTAINED IN THIS VOLUME.

Those marked with a star are synonyms. A few of the earlier notes which are included in this Index were published in an earlier volume.

The species noted in Schweinitz' Herbarium and published in Letter No. 50 are not listed here. Also species and synonyms of separate pamphlets, namely, Synopsis Genus Cladoderris, Synopsis Stipitate Stereums, Synopsis Genus Fomes, Synopsis of the Section Apus of the Genus Polyporus were indexed in each of the pamphlets and are not repeated here.

Aleurina
Lloydiana*.....Note 419
Anthracophyllum
nigrita*..... Note 165
Anthurus
borealis*.....M. N. 514, 571
Macowani.....M. N. 570
Woodii*.....M. N. 571
Arachnion
album .....Note 191, 304
scleroderma.....M. N. 538
Aseroe
rubra.....M. N. 522
Zeylandica.....Let. 52
Asterodon
ferruginosum....Note 202, 275
Auricularia
mesenterica.....Note 44
Beccariella
caespitosa,*
Syn. Clad. p. 10, Note 296
insignis*.....Syn. Clad. p. 11
Kingiana*....Syn. Clad. p. 11
Boletus
rubinellus.....M. N. 543
rubinus.....M. N. 543
Bonia
flava*.....Let. 56
Botrytis
sp.....M. N. 530, Note 272
Bovista
plumbea var. nigrescens
Note 354
Bovistella
aspera.....Note 234
cuprica.....Note 330
Caldesiella
ferruginosa.....Note 202
Calvatia
defodiodis.....Note 45, 161
lepidophora.....Note 81
versipora,* M. N. 548, Note 247
versispora.....M. N. 548
Cantharellus
clavatus.....Note 56
clavatus*.....Note 142
Catastoma
pedicellatum.....Let. 42
Pila.....Let. 42
Cauloglossum
transversarium.....Note 98
Chlamydopus
Meyerianus.....Note 261
Cladoderris

In the Synopsis of the Genus Cladoderris, the species and synonyms are indexed on pages 10-12. They are not repeated here.

Floridanus. M. N. 535, Note 93
Clathrus
Camerunensis.....M. N. 518
Fischeri....M. N. 518, Let. 27
gracilis.....Note 395
Clavariopsis
sp.....Let. 42
Coprinus
domesticus*.....Note 78
radians.....Note 78
Cordyceps
Amazonica.....M. N. 528
Barberi*.....M. N. 546
Basili*.....Cord. Aust. p. 11
caespitosa....Cord. Aust. p. 11

398414

Cordyceps—Continued
cinerea*.....Note 94
Craigii.....M. N. 527
Dovei.....Cord. Aust. 16
entomorrhiza.....Note 94, 158
Forbesii*....Cord. Aust. p. 11
gracilis,
Cord. Aust. 10, Note 94, 158
Gunnii,
M. N. 568, Cord. Aust. 6
Hawkesii*...Cord. Aust. p. 11
Henleyae.....Cord. Aust. 10
herculea*..M. N. 530, Note 98
Hügelii*.....Cord. Aust. p. 11
innominata*..Cord. Aust. p. 11
insignis*...M. N. 530, Note 98
Lacroixii*....Cord. Aust. p. 11
larvatum*....Cord. Aust. p. 11
melolonthae.....M. N. 530
menesteridis*, Cord. Aust. p. 11
nutans,
M. N. 529, 568, Note 250, 372
Robertsii,
M. N. 527, 528, Cord. Aust. 5, Note 230.
Sinclairii*....Cord. Aust. p. 11
sobolifera,
M. N. 529, 568, Note 167
sphecocephala.....M. N. 544
sphecophila*.....M. N. 546
Taylori.....Cord. Aust. 6
Tricentrus, M. N. 568, Note 376
Craterellus
clavata*.....Note 56
papyraceus.....Note 72
pistillaris*.....Note 142
sparassioides*.....Note 296
Cyathus
Hookeri*.....Note 279
microsporus.....Note 279
Cytidia
tremellosus.....M. N. 516
Daedalea
Berkeleyi*.....Note 197
conchata*.....Note 415
confragosa.....Note 55
Dregeana.....Note 343
Eatoni.....Note 342

Daedalea—Continued
gibbosa.....Note 249
juniperina.....Note 21
ochracea.....Note 137
rhabarbarina*.....Note 197
sanguinea*.....Note 415
Sprucei.....Note 49
subtomentosa*.....Note 21
umbrina.....Note 173
ungulata, M. N. 550, Note 386
Eichleriella
deglubens*.....Note 79
Elmeria
cladophora*.....Note 244
Exidia
caespitosa, M. N. 537, Note 337
purpureo-cinerea,
M. N. 536, Note 336
Exidiopsis
alba.....Note 48
Exobasidium
Vaccinii.....M. N. 540
Favolus
dermoporus.....M. N. 554
Fomes

The Synopsis of the Genus Fomes contains an index, pages 278-288 of 343 synonyms and species of Fomes not repeated here.

adamantinus var. setiferus,
Let. 42
angulatus.....Note 73

annosus.....Note 385
annularius.....Let. 40
applanatus (Ganod.), Note 371
aruensis*.....Note 415
Auberianus*.....M. N. 579
badius.....Note 271, 383
carneus*.....Note 12
Clelandii,
M. N. 550, Note 297 (Error), Note 356
contractus*.....M. N. 579
Demidoffi*.....M. N. 523
Earlei*.....M. N. 523
Ellisianus*.....Note 120
fasciatus*.....Note 33
fraxineus....Let. 42, Note 334

Fomes—Continued
fraxinophilus.....Note 190
fusco-purpureus*.....Note 41
geotropus.....Note 133
gilvus.....Note 88
graveolens*..Note 34, 140, 255
hemitephrus.....Note 300
hornodermus.....Note 300
juniperinus.....M. N. 522
Kamphöveneri*.....M. N. 579
lignosus.....M. N. 519
liniatoscaber.....Note 301
marmoratus..Note 33, 49, 131
martius.....Note 130, 300
Meliae.....Note 333
nontostus.....Let. 48
ochroflavus.....Note 175
Ohiensis.....Note 287
Palliseri*.....Note 8
pectinatus.....Note 61
perlevis.....Let. 39
pseudosenex.....Let. 39
psila.....Note 283
pusillus*.....Note 143, 246
Rhaponticus.....Note 62
roburneus.....Note 58
roseus.....Note 12
rubriporis*.....Note 41
scaurus.....Note 63
sculpturatus.....Let. 39, 48
scutellatus,
Note 297 (Error) Note 355
senex.....Let. 48, Note 303
squarrosus.....Note 178
subfomentarius*.....Note 33
texanus.....Note 135
tostus*.....Note 415
torulosus.....Note 41
ulmarius.....Let. 42
velutinosus.....Note 10

Geaster
asper.....Let. 42

Geasteropsis
sp.*.....Let. 52

Glischroderma
cinctum.....Note 52

Guepinia
flabellata*....Stip. Ster. p. 39

Gyrophragmium
decipiens*....Let. 42, Note 262
Texense.....Note 262

Hexagona
albida.....Note 301
bivalvis.....Let. 43
Burchelli.....Note 405
cruenta*.....Note 415
Mori*.....Note 237
nitida.....Note 237
olivacea.....Note 185
Pobeguini.....Let. 42
similis.....Note 353

Hirneola
Auricula-Judae...Note 39, 340
delicata.....Note 340
polytricha.....Note 39

Hirneolina
Kmetii*.....Note 78

Hydnangium
Ravenelii.....M. N. 569

Hydnochaete
badia.....M. N. 560, Note 176
ferruginea.....M. N. 561
Japonica..M. N. 561, Note 411
setigera*.....Note 202
setosa.....M. N. 559

Hydnum
acre.....Note 186, 264
adpressum.....M. N. 552
adustum.....Note 182
aurantiacum.....Note 325
Ballouii*.....M. N. 562
brunneoleucum*.....Let. 56
caeruleum.....Note 189
chrysocomum*.....Note 184
cinnabarinum.....Note 16
compactum,
(Note 69 in error) Note 84, 189.
conigenum.....Note 251
cristatum*.....Note 136, 168
cyaneotinctum...Note 69, 189
fasciatum.....Note 324
fennicum*.....Note 123
ferrugineum.....Note 85
flavum*.....Let. 56
fragile.....Note 326

Hydnum—Continued
fragrans.....Note 153
fuligineo-violaceum, Note 123, 316
geogenium, Note 71 (unnamed) Note 87
graveolens.....Note 193
helvolum.....Note 410
imbricatum, M. N. 553, Note 316
laevigatum.....Note 316
melaleucum.....Note 193
mirabile....Note 136, 154, 168
niger.....Note 70
palmatum*.....Note 296
pavonium*.....Note 296
Peckii.....Note 360
petaloides.....Note 112
plumarium*.....Note 296
pulcherrimum.....Note 113
putidum.....Note 124
rawakense.....Note 111
reticulatum*....Note 224, 326
roseo-maculatum*....Note 410
rubrum*.....Note 16
Schiedermayeri.....Let. 42
scobiculatum.....Note 85
spongiosipes*.....Note 229
stratosum*.....Note 203
strigosum.....Note 203
suaveolens*.....Note 138, 189
subsquamosum.....Note 316
trachyodon*.....Note 32
Underwoodii*.....Note 316
velutinum.....Note 229, 320

Hymenochaete
aspera*.....M. N. 560
crateriformis*, Stip. Ster. p. 30
dendroidea*.....M. N. 539
formosa*.....Stip. Ster. p. 42
Schomburgkii*, Stip. Ster. p. 42
spreta.....M. N. 572
unicolor.....M. N. 572

Hypoblema
lepidophora*.....Note 81

Hypolyssus
clavarioides.....Note 206

Irpex
concrescens.....Note 332
coriaceus.....Note 32
mollis.....Note 321
Tanakai.....Let. 51

Isaria
"arachnophila".....Note 223
atypicola, M. N. 568, Note 223 (unnamed), 257.
Barberi.....M. N. 546
flabelliformis, M. N. 547, Note 44

Kretzschmania
clavus.....Note 309

Lachnocladium
Micheneri.....Note 323
tubulosum.....Note 313

Laschia
auriscalpium.....Note 258
brasiliensis*.....Note 246
Gaillardii.....Note 259
papulata.....Note 246
rubra*.....Note 258
Selloana*.....Note 246
tonkinensis*.....Note 246
Volkersii*.....Note 246

Laternea
angolensis.....Let. 42
bicolumnata....Note 305, 389
columnata...Let. 42, Note 241
triscapa.....Let. 42

Lentinus
The species of foreign Lentinus which were listed in detail in Letter 47 are not itemized here.
dactyliophora*.....Note 40
infundibuliformis*....Note 417
Lecomtei*.....Note 6
Sajor caju.....Note 404
Schomburgkii*.....Note 89
strigosus.....Note 6

Lenzites
betulina.....Note 403
corrugata.....Note 55
deplanata.....Note 312
erubescens.....Note 89
Guilleminiana*.....Note 89
murina.....Note 364

Lenzites—Continued
protracta*.....Note 1
rhabarbarina.....Note 197
rubescens.....Note 55
subferruginea.....Note 363
trabea.....Note 1, 24
tricolor.....Note 55
vialis*.....Note 1
Leotia
atrovirens.....Note 373
Leptochaete
igniaria*.....M. N. 560
setosa*.....M. N. 560
Libellus
papyraceus.....Note 72
Lopharia
lirellosum*.....Note 163
Lycoperdon
multiseptum.....Note 164
piriforme var. flavum, Note 352
subincarnatum.....Note 390
Lysurus
Archeri*.....Note 86
borealis,*
M. N. 513, 515, 571, Note 60, 366, Let. 52.
pentactinus*.....Note 86
Matula
poroniaeformis.....Note 288
Merisma
cristata*.....Note 150
nigripes*.....M. N. 547
Merulius
castaneus.....M. N. 555
Micheneri
Rompelii*.....Note 288
Mitremyces
cinnabarinus.....Note 402
Mucronella
aggregata.....M. N. 531
calva.....M. N. 532
fascicularis.....M. N. 532
minutissima .....M. N. 531
ulmi.....M. N. 533
Mutinus
pentagonus.....Note 97
Mycobonia
flava.....Let. 56
Mycocitrus
aurantium.....M. N. 565
Naematelia
Japonica.....Note 220
Octaviania
Ravenelii.....M. N. 570
Odontia
crocea.....Note 184
Panus
Berkeleyi*.....Note 244
coriaceus.....Note 244
Hoffmanni*.....Note 6
rudis*.....Note 6
Swainsonii*.....Note 6
Paurocotylis
pila.....Note 231
Peziza
cestrica.....Note 418
flava*.....Let. 56
Phaeohydnochaete
ferruginea*.....M. N. 561
Phallus
multicolor.....Note 97
Phellorina
macrospora.....Note 50
Phlebia
meruloides.....M. N. 537
strigoso-zonata,
Let. 46, Note 194
Platygloea
Miedzyrzecensis.....Note 263
Podaxon
Farlowii.....Note 46
Polyporus
The Synopsis of Section Apus of Genus Polyporus contains on pages 375-392 index of 500 synonyms and species which are not repeated here. Letter No. 52 contains many synonyms of Polyporus not repeated here. Compare also Letter 55.
abruptus.....Note 128
aduncus.....Note 228
alboluteus.....Note 242, 274
albo-sordescens*.....Note 134
altocedronensis*.....Note 314
alutaceus...Note 110, 119, 401
(cfr. alutaceus).....Note 401
Amesii.....Note 327
amygdalinus.....Note 331
(Amaur.) angustatus...Let. 42

Polyporus—Continued
arcularius.....Note 347
argentatus*.....Note 8
asterosporus.....Note 282
australiensis.....Note 270
Ballouii.....Note 118, 285
(Amaur.) Bathiei,
Let. 43, Fig. 566, Let. 48
betulinus.....Note 187
Berkeleyi....Note 29, 306, 391
borealis.....Note 370
(Amaur.) Brittoni....Note 291
(Amaur.) Brookesii.....Let. 42
Cantharellus.....Note 221
(Amaur.) Chaperi.....Note 30
ciliatus*.....M. N. 523
circinnatus...Let. 43, Note 397
colossus.....Note 38
confusus.....Note 308
(Amaur.) conicus,
Note 100, (Fig. 567)
corrugatus*.....Note 415
corruscans,
Note 47, 149, 243, 398
costatus.....Note 256
cristatus.....Note 2, 36
croceus.....Note 4
Cummingsii.....Note 181
decipiens.....Note 348
dichrous.....Note 105
distortus.....M. N. 549
dryadeus.....Note 232, 235
dryophilus*..Note 47, 149, 243
(Gan.) dubiocochlear...Let. 43
Eucalyptorum.....Note 180
fasciatus.....Let. 48
favoloides.....Let. 48
Feei.....Note 7
fissilis.....Note 134
flavovirens*.....Note 2, 36
formosissimus*.....Note 90
Friesii*.....Note 47, 149, 243
frondosus,
Note 377, Let. 60, Note 37
fulvus*.....Note 47
fumidiceps.....Note 280
fumosus.....Note 15
fusco-badius*.....Note 415

Polyporus—Continued
fusco-maculatus*,
Note 318, M. N. 523
galactinus.....Note 147
(Gano.) gibbosus.....Let. 55
giganteus.....Note 369
gilvus.....Note 22
glomeratus.....Note 204, 292
graveolens...Note 19, 34, 315
guttulatus*.....Note 119
Hartmanni.....Note 18, 349
hemileucus*.....Note 9, 23
Henningsii.....Note 254
hirtus.....Note 67
hispidellus*.....Note 67
hispidus.....Note 368
Hookerii.....Note 160
hypococcinus*.....Note 4
ilicicola.....Note 77
imbricatus*.....M. N. 523
immaculatus.....Note 103
intybaceus,
M. N. 523, Note 17, 276, 329
lacteus.....Note 148
leucocreas*.....Note 180
lignosus.....Note 104
lucidus.....Note 28, Let. 48
Madagascarensis.....Note 106
Marmellosensis.....Note 282
Meliae.....Note 240
mesotalpae.....M. N. 564
Mikadoi.....Let. 43
Mikawai.....Note 214
minuto fruticum.....Note 107
(Gand.) mollicarnosus,
Note 345
mollis.....Let. 43
mutabilis.....Note 207
Mylittae,
M. N. 518, 533, Note 269
neofulvus.....Note 367
obtusus....Note 64, 65, Let. 52
ochroleucus.....Let. 42
(Ganod.) oregonensis.Note 211
orientalis.....Note 375
osseus.....Note 5
ovinus.....Note 196, 335
pallidus.....Note 278

Polyporus—Continued
Palliser*.....Note 8
(Amaur.) papillatus..M. N. 567
Patouillardii....Note 253, 268
Pennsylvanicus*.....Note 278
Pes-caprae.....Note 36
Pilotae*.....Note 4
plebius var. cubensis*..Note 23
pocula.....M. N. 569, Let. 42
porphyritis.....Note 141
portentosus, Let. 44, Note 233
pseudofruticus.....Note 208
quaitecasensis.....Note 281
radiatus.....Note 35
radicatus,
Note 319 (radiatus in error)
Note 380
renidens.....Note 90
rheades.....Note 149
rheicolor.....Let. 42
Rostkovii.....Note 278
rubiginosus*.....Note 134
(Amaur.) rudis.....Note 286
(Amaur.) rugosissimus,
Note 99 (Fig. 565)
(Amaur.) salebrosus....Let. 42
salignus.....Note 15
sambuceus.....Note 374
Sartwelli.....Note 289
scabrous*.....Note 415
scaurus.....Note 252, 293
Schweinitzii.....Note 76
secernibilis.....Let. 45
Soloniensis.....Let. 42
spermolepidis*.....Note 180
spongia.....Note 392
spumeus.....Note 132
squamosus.....Note 27, 174
stereoides*.....Note 358
stipticus.....Note 290
subfulvus.....Note 407
subhydrophilus*.....Note 207
subpendulus*.....Note 187
subradiatus.....Note 344
subradicatus.....Note 396
substygius.....Note 408
sulphureus.....Note 416
Talpae.....M. N. 565

Polyporus—Continued
tomentosus.....Let. 43
(Amaur.) Torrendii...Note 205
trabeus.....Note 363
tropicalis*.....Note 285
(Amaur.) trulliformis...Let. 42
tuberaster.....M. N. 524
udus.....Note 318
umbellatus.....Note 277
umbilicatus.....Note 209
unnamed.....Note 183
valenzuelianus.....Note 9
varius.....Note 68, 162
versisporus.....Note 212
virgatus.....Note 156
volvatus.....Note 95
vulpinus*.....Note 149
Warmingii*.....Note 296
Wightii*.....Note 415
Wilsonianus.....Note 179
Yasudai.....Note 59
Yoshinagi.....Note 213
zonalis.....Note 139 (error)

Polystictus
affinis.....Note 210
albidus.....Let. 42
Blumei.....M. N. 563
caperatus....Let. 42, Note 379
cuneatus*.....Note 144
cuticularis*.....Note 188
dependens.....Note 215
elongatus.....Note 125
fimbriatus.....Note 20, 296
flabelliformis.....Note 310
gracilis.....Note 245
hololeucus*.....Note 180
honduriensis*.....Note 104
indecorus.....Note 415
Macounii.....Note 169
Montagnei.....Note 188, 195
multifidis*.....Note 296
multiformis.....Note 102
oblectans.....Note 351
pavonius*.....Note 296
pellucidus.....M. N. 554
perennis.....Note 328
Perrottetii*.....Let. 52
Persoonii.....Let. 39

Polystictus—Continued
pinsitus.....Let. 52
planus.....Note 358
platypilus*.....Note 415
pubescens.....Note 361
rubidus.....Note 25
Sequoiae.....Note 144
subaffinis.....M. N. 550
subpictilis.....Note 413
subpictus.....Let. 43
tabacinus.....Note 108
trichomallus.....Let. 52
variiformis.....Note 117, 201
Washingtonensis*....Note 144
Poria
aurantiaca.....Let. 42
aurantio-tingens.....Note 409
mellita.....M. N. 543
mollicula.....M. N. 543
portoricensis*.....Note 32
Weirii.....Note 227
Pseudocolus
Archeri.....Note 86, 157
Pterula
fascicularis*.....M. N. 532
Ptychogaster
(sp.).....Note 393, 414
alveolatus.....M. N. 549
Radulum
Ballouii.....M. N. 562
Emerici*.....Note 298
Javanicum*.....Note 298
Kmetii.....Note 78
lirellosum.....Note 163, 298
mirabile.....Note 298
Neilgherrense.....Note 298
Schizophyllum
commune.....Let. 41
Scleroderma
(form).....Note 57
Sebacina
dendroidea,
M. N. 538 (cfr. Note 116)
incrustans.....Note 150
Septobasidium
pedicellatum.....Note 42
Simblum
sphaerocephalum.....Let. 42
Sistotrema
confluens.....Note 359
crocea*.....Note 184
Sphaerobolus
stellatus.....Let. 52
Sparassis
See also synonyms on page 33, Syn. Stip. Stereums.
crispa.....Note 51, 400
Herbstii*.....Note 51
spathulata.....Note 51
unnamed.....Note 51
Stephensia
sp.....Note 17
Stereum
The species and synonyms of Stipitate Stereums are listed in the second separate pamphlet of this volume. They are not repeated here. The foreign Stereums are itemized in Letter 46. The species and synonyms are not listed here.
affine.....Note 92
albidum.....M. N. 555
albo-badium.....Note 239
amoenum*.....Note 341
arcticum.....Note 53
australe.....Note 115, 387
bicolor.....Note 172
Burtianum.....Note 91, 399
caperatum,
Syn. Clad. p. 10, M. N. 549 (error).
contrarium*.....Note 126
cuneatum*.....Note 226
dendriticum*.....M. N. 539
duriusculum.....Note 74
fasciatum.....Note 3
flabellatum*....Syn. Clad. p. 11
frustulosum.....M. N. 572
Galeottii.....Note 365
gausapatum...Syn. Clad. p. 11
Harrisii*.....Syn. Clad. p. 11
illudens.....Note 346
Kalchbrenneri.....Note 341
laxum.....Note 339
Leichardtianum.....Note 350
Leveilleanum.....Note 177
obscurum.....Note 299
ochroleucum.....Note 53
pallidum.....Note 381

Stereum—Continued
princeps.....Note 126
purpurascens.....Note 192
radians*.....Note 159
Ravenelii.....Note 267
roseocarneum*.....Note 177
scytale*.....Note 126
spiniferum*.....Note 155, 346
strumosum.....Note 238
unguliformis.....Note 114
unknown.....Note 13
variicolor.....Note 171
versicolor,
Note 3 (error), Note 53 (error), 159.
vibrans.....Let. 53
See also Syn. Stip. Stereums.

Strobilomyces
pallescens.....Note 82
pallidus...M. N. 538, Note 322
(species).....Note 82

Tachaphantium
Tiliae*.....Note 263

Thelephora
See also synonyms listed page 43, Syn. Stip. Stereums.
Americana.....Note 295
Amigenatska*.....Note 92
amoena*.....Note 177
atrocitrina*.....Note 200
dendritica*.....M. N. 539
"dendroidea"*.....Note 116
"fastidiosa"*.....Note 266
liliputiana*.....M. N. 548
papillosa.....Note 222, 248
paradoxa,*
M. N. 559, Syn. Clad. p. 11
pedicellata*.....Note 42
perdix*.....M. N. 572
radiata.....Note 170
radicans.....Let. 48
rosella*.....M. N. 548
setosa.....M. N. 560
sp.....Note 170
spiculosa.....Note 265

Torrubia
herculea*.....M. N. 530
Melolonthae*.....M. N. 530

Trametes
arcticus.....Note 8
avellanea.....Let. 48
Bulliardii.....Note 55
carnea.....Note 12
Carteri.....Note 127
cubensis.....Note 9, 415
cupreo-rosea....Note 284, 406
Feei.....Note 7, 284, 406
flava*.....M. N. 521
fusco-badia*.....Note 253
gallica*.....M. N. 520
gibbosa*.....Note 249
gilvoides.....M. N. 520
heteromorpha.....Note 357
hispida.....M. N. 521
incondita.....M. N. 551
Junghuhnii*.....Note 415
lactea.....Note 166
Moselei.....Note 415
nitida*.....Note 415
ochroflava*.....Note 175
odorata.....Note 75
Persoonii.....Note 385, 415
piceina.....Note 225
protracta.....Note 24, Let. 40
rosea.....Note 302
Sequoiae*.....Note 144
stereoides, var. Kmetii,*
Note 358
strigata.....Note 301
variiformis.....Note 273
versiformis*.....Note 415

Tremella
albida*.....Note 48
australiensis.....Note 80
foliacea.....Note 80
fuciformis..M. N. 556, Note 96

Tremellodendron
cuneatum,
M. N. 546, Note 226 (as Stereum).

Tylostoma
Leveilleanum.....Note 236

Xerotus
Archeri.....Note 338
Berterii.....Note 165

Xerotus—Continued
fuliginosus.....Note 338
lateritius.....Note 165
nigritus.....Note 338
viticola.....Note 165
Xylaria
anisopleuron .....Note 412
aristata...M. N. 534, Note 311
aspera*.....Note 412
axifera....M. N. 534, Note 311
cinnabarina.....Note 129
Xylaria—Continued
Cornu-Damae.....Note 388
flabelliformis*,
M. N. 547, Note 44
hypoxylon.....Note 66
Massula.....Note 412
persicaria*.....Note 121
phosphorea*.....Note 412
platypoda.....Note 412
tentaculata.....Note 10
torrulosa*.....Note 412

INDEX TO CONTRIBUTORS' NAMES.

The liberality with which my friends and correspondents have sent specimens for study has been the chief means of advancing my knowledge of the subject. It is only through an abundance of specimens from various localities that any subject can be learned. The numbers in the following list refer to the letters where detailed account of the specimens will be found.

Abbott, Dr. E. K., California.....40, 53, 54, 56
Adcock, G. H. Australia.....45, 61
Aiken, W. H., Ohio.....49
Allen, Miss Lizzie C., Massachusetts.....47, 49, 53, 60
Ames, F. H., New York,
39, 40, 42, 45, 47, 49, 54, 56, 60, 61
Aranzadi, T. de, Spain.....42, 60
Archer, W. A., New Mexico...56, 58, 61
Arthur, J. C., Indiana.....53
Babcock, D. C., Ohio.....53
Baldwin, D. A., Massachusetts.....42
Ballou, W. H., Forked River, N. J....42
Ballou, W. H., New York,
39, 40, 42, 44, 45, 47, 49, 53, 54, 58, 59, 60
Barbier, M. J., France.....42
Barker, W. E., New Zealand..42, 59, 60
Bartholomew, E., Kansas.....45, 49
Bashamber, Prof. D. E., India....42, 47
Bates, J. M., Nebraska.....43, 61
Bean, Prof. A. M., Oregon.....60
Beardslee, Prof. H. C., North Carolina.....39, 49, 53, 60, 61
Becker, Dr. H., South Africa.....42
Bell, Albert T., Louisiana.....53
Bernin, A., France.....42
Bethel, E., Colorado.....42, 54
Bewley, Anna K., Pennsylvania.....61
Bijl, P. Van der, South Africa 61
Bilgram, Hugo, Pennsylvania.....40, 59
Blackford, Mrs. E. B., Massachusetts.....39, 47, 49, 53, 54, 60
Bonansea, Dr. Sylvio J., Mexico, D. F.....40, 45, 49, 53
Bonham, Miss Ellen Ida, Australia...39
Boston Mycological Club.....56
Bourdot, Rev. H., France,
42, 51, 53, 58, 61
Brace, L. J. K., Bahamas..42, 47, 59, 61
Brandegee, T. S., California.....47, 60
Breda de Haan, Dr. J. Van, Java....42
Brenckle, Dr. J. F., North Dakota,
39, 53, 56, 60
Bresadola, Rev. G., Austria 51
Brewster, Lilian, New Hampshire....59
Brockes, Anna, Brazil.....40, 42, 44
Brown, Chas. E., Wisconsin.....49
Brown, George, Pitcairn Island.....47
Brown, Geo., New Zealand.....47, 56
Bubna, M., Ohio.....61
Buck, P. Pio, Brazil.....53
Burke, Dr. R. P., Alabama,
56, 58, 59, 60, 61
Burnham, S. H., New York,
39, 44, 49, 51, 54
Butignot, Dr., Switzerland.....39, 49
Butler, A. L., Massachusetts.....53
Cahn, Mrs. J. A., Michigan.....42
Campbell, Miss E., New South Wales, 47
Carl, Emma J., Ohio.....45, 47, 49
Carter, L. W., South Dakota.....40, 49
Castillon, Leon, Argentine.....42
Cave, G. H., India.....49
Cheel, E., Australia.....39, 58
Cheeseman, W. N., England.....44, 47

Cleland, Dr. J. B., Australia, 53, 56, 59, 61
Compton, J. S., Michigan....53
Conant, J. F., Massachusetts....60
Cook, Mel T., New Jersey....39
Cotton, A. D., England....45
Cradwick, Wm., Jamaica, 39, 40, 42, 44, 47, 51, 60
Craig, Eric, New Zealand....59
Crossland, Chas., England....42
Croswell, Emily S., Massachusetts, 60, 61
Davidson, Mrs. E. E., Ohio....42
Davis, Simon, Massachusetts, 42, 44, 45, 47, 49, 53, 59, 60
Dawson, C. W., Oklahoma....42
Dearness, John, Canada, 39, 42, 49, 53, 54, 56, 58, 59, 61
Demetrio, C. H., Missouri 42, 53, 54, 61
Dessenon, M., France....40, 42, 45
Dickson, B. T., New York....60
Diehl, Wm. W., Iowa....59
Dobbin, Frank, New York....42, 53
Dumee, P., France....53
Duncan, S., New Zealand....47
Dupain, V., France....49
Dupont, E., Reunion Island....47
Dupret, H., Canada....60
Duthie, Miss A. V., South Africa, 39, 47, 49, 53, 60
Dutra, Dr. J., Brazil....40, 54, 60
Eastwood, Miss Alice, California..54, 58
Edwards, S. C., North Carolina...44, 53
Evans, I. B. Pole, South Africa, 39, 56, 60
Eyre, Rev. W. L. W., England....42
Fairbanks, Dr. W. A., Massachusetts, 42
Faris, Ben M., Ohio....49
Farlow, W. S., Massachusetts....44
Fawcett, H. S., California....42, 47
Fischer, Dr. O. E., Michigan....59
Fisher, G. Clyde, New York...42, 53, 60
Fisher, Geo. L., Texas....61
Flockton, Miss Margaret, Australia....60
Forbes, C. N., Hawaii....40, 56, 59, 61
Fries, Thore C. E., from Swedish Lapland....49
Froggatt, Walter W., Australia, 43, 49, 53
Gambage, R. H., Australia....40
Garman, H., Kentucky....47, 59
Garner, W. G., New Zealand....47
Gehman, John, Michigan....44, 45
Gillet, Rev. J., S. J., Congo Belge, 42, 47
Grant, J. M., Washington....58, 60, 61
Grelet, Rev. L. J., France....44, 49
Griffin, D. B., Vermont....44, 53, 60
Griffiths, David, Oregon....56
Griffiths, David, Texas....45, 58, 59
Griffiths, David, District of Columbia, 60, 61
Gunderson, Mrs. Minnie, Massachusetts....49, 51
Hadley, Alice M., Vermont....47, 59, 60
Haglund, Erik, Sweden....51
Hamilton, A. G., New South Wales...60
Hammerstein, H. C., Deutsch Ost Afrika....53
Hanmer, C. C., Connecticut....47, 60
Hanmer, C. C., Collected in Maine...60
Hariot, P., France....47
Harper, E. T., Illinois....45
Harvey, B. T., Colorado....58, 59, 60
Hassler, Dr. F. A., California....39, 49
Hedgcock, Geo. G., District of Columbia....60
Hibbard, Miss A., Massachusetts, 39, 49, 53, 54, 60
Hinsby, Geo. K., Tasmania....44
Holden, Wm., North Carolina....47, 49
Holden, Wm., Wisconsin....45
Hone, Miss Daisy M., Minnesota....60
Houghton, H. E., India....53, 60
House, H. D., New York....54
Hrdlicka, Dr. A., District of Columbia....59
Humphrey, C. J., Wisconsin....49
Irani, J. H., India....40, 45
Jackson, A. Bruce, England....44
Jahandiez, M. E., France....42
Janse, A. J. T., Africa....42, 49
Jerruck, D. F. O., India....39
Jones, Kate A., New Hampshire, 44, 49, 53, 60
Kauffman, C. H., Michigan, 54, 58, 59, 61
Kawamura, S., Japan....53
Kern, Frank D., Indiana....45
Killgore, Anthony, New Jersey....44
Knaebel, Ernest, New York....42, 59
Koenig, P., Mauritius....40, 42, 45
Krieger, L. C. C., California, 42, 44, 53, 59
Kuyper, J., Surinam....42, 44
Laing, R. M., New Zealand....39
Lakin, W. T., Maryland....40, 42
Lane, Miss Rose H., California...39, 53
Langton, Thos., Canada....40, 44, 49
Latham, Roy, New York, 54, 56, 58, 60
Leeper, B., Ohio, 42, 44, 53, 58, 59, 60, 61
Leeuwen, Dr. van., Java, 47, 49, 51, 53, 56
Legere, L., India....44
Lehman, E. A., North Carolina....42
Lewis, John E., Japan....60, 61
Lind, J., Denmark....39, 47, 51
Long, W. H., New Mexico....49, 60
Longyear, B. O., Colo....42, 53
Lordley, E. D., Nova Scotia....49, 60

Lowe, Mrs. F. E., Massachusetts, 49, 51, 53, 60
Lyman, G. R., District of Columbia, 59, 60
Macbride, Prof. T. H., Iowa...40, 42, 49
MacClement, W. T., Ontario.....39
Macoun, Prof. John, British Columbia.....49
Macoun, John, Canada.....45, 47, 53
Mahaluxmivala, C. D., India.....39
Mains, E. B., Michigan.....59
Maire, R., Algeria.....44, 56
Maire, R., France.....49
Marloth, R., South Africa.....40, 61
Master, P. D., India.....60
Melbourne, Botanic Gardens, Australia.....47
Memminger, Ed. R., North Carolina..47
Menezes, C. A., Madeira Islands.....45
Merrill, E. D., Philippines.....47
Mignault, Rev. Joseph, Canada.....39
Mille, Rev. Louis, Ecuador.....42, 60
Morris, Geo. E., Massachusetts, 39, 45, 47, 49, 53, 61
Mousset, J. P., Java.....40, 42
Nakanishiki, K., Japan.....42
Nambu, N., Japan.....42, 45
Navas, Rev. Longinos, Spain.....49
Nead, J. H., New York.....49
Nelson, N. L. T., Florida, 39, 54, 56, 58
Noble, Mrs. M. A., Florida, 44, 49, 53, 60
O'Connor, Chas., Mauritius...39, 42, 44
Oleson, O. M., Iowa, 44, 47, 49, 53, 56, 59
Overholts, L. O., Indiana.....54
Overholts, L. O., Missouri, 49, 51, 53, 56
Overholts, L. O., Ohio.....42
Overholts, L. O., Pennsylvania, 59, 60, 61
Overholts, L. O., From South Africa, 59
Owens, C. E., Oregon.....53, 56, 60
Pammel, L. H., Iowa.....49
Parish, S. B., California, 42, 44, 49, 56, 58
Patterson, Flora W., Washington, D. C.....44, 45
Paul, J. T., Australia.....39, 51
Pazschke, Dr. O. Dresden.....47
Peck, Prof. Chas., New York.....44
Peckolt, Gustave, Brazil, 39, 40, 42, 43, 44, 45, 53, 54, 56
Perrier de la Bathie, Henri, Madagascar.....39, 43, 44, 48, 61
Petch, T., Ceylon, 40, 42, 45, 51, 56, 58, 61
Pierrhugues, Dr., France.....53
Plitt, C. C., Maryland.....47, 51
Ramsey, Herbert P., District of Columbia.....60
Ratnagar, S. N., India.....39
Ray, Joges, India.....42
Rea, Carleton, England.....42, 44
Rick, Rev. J., Brazil, 39, 40, 42, 47, 49, 51, 53, 60
Riddle, L. W., Massachusetts.....40, 60
Ridley, H. N., Straits Settlements....39
Ritchie, A. H., Jamaica.....61
Robinson, R. G., New Zealand....42, 45
Romell, L., Sweden, 40, 44, 45, 53, 56, 58
Ropes, Willis H., Massachusetts.....44
Rose, J. N., Washington, D. C.....40
Sahni, B., India.....39
Saxton, W. T., South Africa.....40, 60
Scarfe, W. A., New Zealand.....44, 49
Schestunow, N., Russia.....42, 44
Schultze-Wege, Madame, Germany...47
Schumo, S. L., Delaware Water Gap..58
Simmonds, J. H., Australia.....53
Smith, Theo. L., Massachusetts...43, 47
Solerzano, Dr. M. M., Mexico.....40
Spaulding, Perley, Vermont.....56
Sterling, E. B., New Jersey, 42, 43, 53, 60
Stevenson, Wm. C., Jr., Pennsylvania, 60, 61
Stigler, Dr. E., Brazil.....49
Stocker, S. M., Minnesota, 44, 45, 59, 60
Storer, Miss E. D., Georgia.....42, 47
Stoward, Dr. F., Australia, 47, 49, 53, 60
Swanton, E. W., England, 42, 44, 45, 60, 61
Taylor, Morris, New York.....60
Taylor, Rose M., Michigan.....61
Tepper, J. G. O., South Australia. 39, 40, 47
Theissen, Rev. F., Austria.....40
Thomson, Geo. M., New Zealand....42
Torrend, Rev. C., Brazil, 53, 54, 56, 58, 59, 60, 61
Tucker, Susan, Washington.....49, 60
Umemura, Jintaro, Japan, 39, 42, 43, 45, 53, 56, 61
Ussher, C. B., Java.....42
Van Bambeke, Ch. Belgium.....42
Von de Lek, H. A. A., Holland.....45
Von Schrenk, Hermann, Missouri, 40, 42, 45, 60
Vanderyst, Hyac, Congo Belge.....42
Wakefield, Miss E. M., England.....53
Walker, S. B., Colorado.....47
Weir, James R., Idaho.....43, 60
Weir, James R., Michigan.....40
Weir, James R., Montana.....44, 58, 61
Weis, D. W., Massachusetts.....39
Westgate, J. M., Hawaii.....58
Wheldon, H. J., England.....45
Whetstone, Dr. Mary S., Minnesota, 39, 44, 47, 49, 60
Wilder, Mrs. Charlotte, California, 47, 51, 54

Williamson, H. B., Australia.....42
Wilson, James, Australia.....45, 53
Wilson, M. T., Scotland.....40, 49
Wolf, F. A., Alabama.....54, 60
Wooten, E. C., Montana.....60
Wulff, E., Russia.....42, 44
Yamada, G., Japan.....53
Yasuda, A., Japan....42, 43, 44, 45, 47, 49, 51, 53, 54, 56, 60, 61
Young, R. H., Florida.....40
Young, Miss Esther, Ohio.....42
Zenker, Dr. G., Africa.....42, 47
Zimm, L. A., New York.....60, 61
Zundel, Geo. L., Utah.....61

INDEX TO MISCELLANEOUS SUBJECTS.

Agaric, A Much Named.....M. N. 524
Amateur Species Manufacturers, M. N. 517
American Boy, The....Note 145, Let. 49
Beardslee, H. C., Portrait of, Frontispiece of M. N. No. 41
Berkeley, Portrait of, Frontispiece to Synopsis Stereums
Bourdot, Rev. H., Portrait of, Frontispiece to Synopsis of Fomes
Bulletin Mushrooms and other common fungi.....Note 384, Let. 60
Citing "Authorities"..Note 419, Let. 61
Cladoderris, Synopsis of the Genus.....Separate Pamphlet
Cooke, Mordecai Cubitt, Portrait of.....Frontispiece to Let. 57
Cordyceps, Collecting of..Cord. Aust. 12
Cordyceps of Australasia, Synopsis of.....Separate Pamphlet
Cordyceps of Japan.....M. N. 567
Ellis, J. B., Portrait of, Frontispiece of M. N. No. 39
English Tradition Corrected, An.....Note 94, Let. 47
Exobasidium, The Genus....M. N. 540
Farlow, W. G., Portrait of Frontispiece of M. N. No. 40
Fomes, Synopsis of the Genus, Separate Pamphlet
Hydnochaete, The Genus....M. N. 559
Hypholoma, The Genus, Note 198, Let. 53
Japanese Fungi, Illustrations of, Let. 49
Kew, Changes at.....Note 260, Let. 56
Kuntze's (Otto) Revisio Generum Plantarum.....Note 20, Let. 38
Letter from "W".....Note 199, Let. 53
Lysurus, An Acre of.....M. N. 515
Magnus, Prof. P., Portrait of, Frontispiece to Cordyceps of Australasia.
Marasmius, The New York Species of.....Note 394, Let. 60
McGinty, More About Professor.....Note 147, Let. 49
McIlvaine's Book, A New Edition of.....Let 44.
Minnesota Mushrooms.....Let. 44
Mucronella, The Genus.....M. N. 531
Murrill, William Alphonse, Portrait of, Frontispiece to Synopsis of Section Apus of the Genus Polyporus.
N'abuses pas du Microscope, Note 43, Let. 43
Neuman's Polyporaceae of Wisconsin.....Note 317, Let. 59
New York Species of Marasmius.....Note 394, Let. 60
Peck, Professor Chas. H., Portrait of...Frontispiece of M. N. No. 38
Phalloids, Clathroid, Umbilical Plates of.....M. N. 512
Phalloids, Dried.....M. N. 556
Phalloids from Africa, Two Interesting.....M. N. 518
Phalloids of Australia...Note 97, Let. 47
Pholiota, Monograph of.....Let. 44
Polyporus, Synopsis of the Section Apus.....Separate Pamphlet
Sclerotium of Termite Nests, Note 378, Let. 60
Stereums, Synopsis of the Stipitate.....Separate Pamphlet
World Does Move, The, Note 294, Let. 58

MYCOLOGICAL NOTES

And Other Publications Issued by C. G. Lloyd.

SUBSCRIPTION PRICE.—A little personal interest on the part of the recipient in picking up and sending to my address, specimens of the larger fungi. All are desired excepting specimens of fleshy Agarics. Simply dry the specimens and send them in. Address

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The following publications comprise those that have been issued to date. We cannot supply sets of back numbers, but are often able to furnish a few missing numbers to complete sets.

Vol. 1. Mycological Notes, Nos. 1-18, 1898-1904.
A compilation of the Volvae of the United States, 1898.
The Genera of Gastromycetes, 1902.
The Geastrae, 1902.
The Lycoperdaceae of Australia and New Zealand, 1905.
Notes on the Amanitas of the Southern Appalachians (by H. T. Beardslee), 1902.
Letters Nos. 1, 2, and 3, 1904.
Plates, 1-39.

Vol. 2. Index, Vol. 2.
Mycological Notes, Nos. 19-31, 1905-1908.
The Tylostomeae, 1906.
The Nidulariaceae, 1906.
The Phalloids of Australasia, 1907.
Letters Nos. 4-24, 1905-1908.
Plates Nos. 40-123.

Vol. 3. Index, Vol. 3.
Mycological Notes, Nos. 32-37, 1909-1911.
Mycological Notes, Old Species, Series No. 1, 1908.
Mycological Notes, Polyporoid Issue, Nos. 1-3, 1908-1910.
Synopsis of the Known Phalloids, 1909.
Synopsis of the Genus Hexagona, 1910.
Synopsis of the Section Microporus, Tabacinus and Funales of the Genus Polystictus, 1910.
Synopsis of the Section Ovinus of Polyporus, 1911.
Synopsis of the Stipitate Polyporoids, 1912.
Letters Nos. 25-38, 1909-1911.

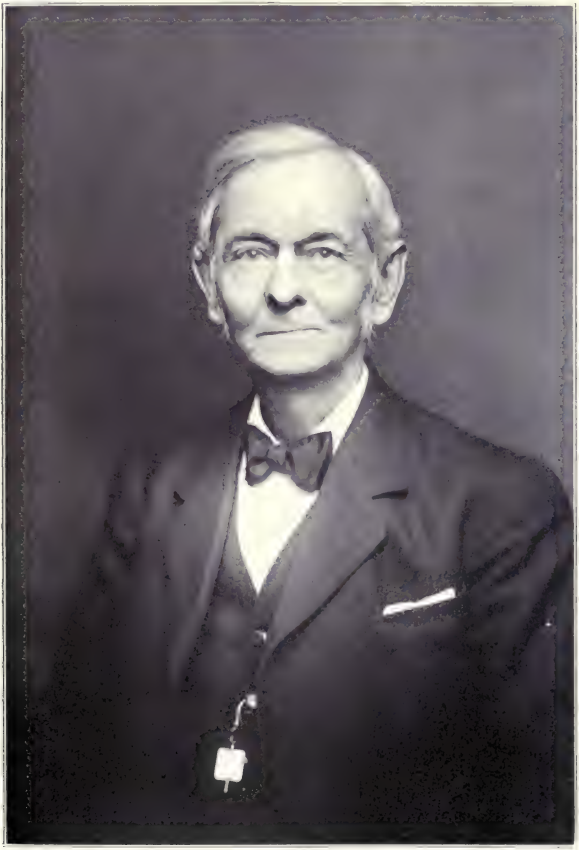
Vol. 4. Index, Vol. 4.
Mycological Notes, 38-41, 1912-1916.
Synopsis of the Genus Cladoderris, 1913.
Synopsis of the Stipitate Stereums, 1913.
Synopsis of the Genus Fomes, 1915.
Synopsis of the Cordyceps of Australasia, 1915.
Synopsis of the Section Apus of the Genus Polyporus, 1915.
Letters 39-61, 1912-1916.

MYCOLOGICAL NOTES.

BY C. G. LLOYD.

No. 38.

CINCINNATI, O. NOVEMBER, 1912.



CHARLES H. PECK.

UNIVERSITY OF CALIFORNIA

PROFESSOR CHARLES H. PECK.

At various times portraits of mycologists have been presented in "Mycological Notes," but never one that has given me greater satisfaction than does the portrait of Professor Charles Peck, whom I consider the father of systematic American mycology. When he began his study years ago, very little had been accomplished with American fungi, and it will therefore not be out of place to give a short preliminary résumé. Indeed, it is necessary that this should be done in order to show the exceptional difficulties under which Professor Peck labored.

Schweinitz, who got his introductory knowledge from his own work in Europe, published a list of his own determinations from North Carolina and then from Pennsylvania. At this time, about the beginning of the century, the subject was practically unknown in America and he was absolutely alone. Consequently little attention was paid to his efforts until years after his death.

Then came Curtis and Ravenel in North Carolina, who, however, were collectors rather than mycologists. Curtis sent all of his specimens to Berkeley for naming, and Berkeley advised him of the names by numbers, on which uncertain basis Curtis published the little he accomplished. None of his work showed much personal knowledge of the subject; for not one out of ten of the specimens that he sent to Berkeley to be named was Curtis able to suggest even a generic name. Notwithstanding this, Berkeley published them under the advertisement of "Berkeley and Curtis," and this deception is still carried on in nomenclature, although Curtis had about as much to do with the naming of the plants as did our Professor McGinty. This is one of the frauds that is winked at in our current usage.

Frost began his studies in Vermont and published a list of specimens in Tuckerman's Catalogue. He seems to have determined his species largely from European literature, and did very remarkable work considering the difficulties under which he labored.

When Professor Peck began his work with fungi forty odd years ago, the foregoing American mycologists only had preceded him. He got his first ideas from Curtis, from whom he purchased a set of specimens. At that date it was extremely difficult to get the names of even the most common plants, but Professor Peck persevered, and has now been working on this subject for so many years that he has acquired an exceptional field knowledge of fungi, especially agarics, no other American mycologist being his equal. In his capacity of State Botanist of New York, he has issued 45 Annual Reports, the first of which is called the 21st Annual Report, 1868, and the last, which is known as the 65th Report, 1911. These Reports have been devoted largely to a description of "new species," and I think all records have been lost of the number even, of "new species" that he has proposed. In fact, Professor Peck has given names to almost all our American species of agarics. Of the validity of many of these "new species," I venture to express serious doubts; for, while I know very little about agarics, it develops in the Gasteromycetes and Polyporaceae, which have been my special studies, that the fungus flora of the temperate world is practically the same and that most "new species" that have been named, not only in America but in Europe, are really old species not recognized. This, however, is natural in

view of past conditions, for it is difficult to do anything with mycology from a study of the literature, and not only difficult but impossible to recognize American growing plants from descriptions in European works. The only way they will be ever collated is by the efforts of some one possessed of a practical field knowledge of the floras of both countries. When this is carefully accomplished, if it ever is, I am confident that very few endemic species will be found in America.

Notwithstanding, the highest consideration is due to the workers in the older school in mycology, such as Peck, Morgan and Ellis, who very naturally thought they were working with an absolutely new flora, and who, in that opinion, devoted their energies to the naming of the specimens discovered. Although I believe they were mistaken in regard to many of their species being new, it is my belief that it was not all their fault, for they tried their best to identify their plants from the literature at their command. In this connection, a well-worn copy of Fries' Hymenomycetes Europaei that is in Albany to-day, stands a mute but eloquent witness of the persistent efforts of Professor Peck in endeavoring to connect and identify his specimens with the European plants.

And this work has not been lost; it will be many years, not during this generation, before the ultimate truth will be known in regard to the identity of the American species, during which time the names proposed by our American mycologists will serve a useful purpose.

While it is very difficult, and with most species it is impossible, to identify a species from an isolated description, a large part of Professor Peck's work has been more practical and valuable, viz.: systematic accounts of the species of New York genera. We look upon these monographs as the most valuable work that has been done by anyone in American mycology. The larger part of the subject has, by the persistent study of years, been covered by Professor Peck, and it is to be hoped that he will continue the same process; for I believe none will disagree with me in that he is the only real field worker possessed of a practical knowledge of American agarics. We publish following a list of the monographs that have been issued by Professor Peck and the numbers of the Reports in which they may be found:

It will be noted that of the 47 genera of New York Agarics, Professor Peck has monographed 28 and there remain but four important ones to be monographed, viz.:—Coprinus, Cortinarius, Marasmius, and Mycena. The remainder are mostly small genera that can soon be disposed of. It is surely to be hoped that Professor Peck will be able to complete the work, which will then be the basis of all future work with American Agarics.

I believe these monographs to be the most practical work that has been done with American agarics, and I think we have no other publications on agarics that equal them in value. It was my experience some years ago when I was working on agarics that whenever I found a species in a genus Professor Peck had monographed I rarely had any trouble in determining it. On the other hand, in the genera that had not been monographed by Professor Peck, of the greater part of the specimens I found, I could come to no satisfactory conclusions regarding them. In my opinion, only monographic work has any practical value, and then only where an author like Professor Peck, has a thorough field knowledge of the subject. The various keys of American agarics that have been compiled by those who have principally a book acquaintance with them, as well as the flood of name juggling that is now going on, have little value and are not much credit to American Mycology.

List of Monographs of New York Agarics published by Professor Charles Peck, with the number of his Report where published. These genera without numbers have not as yet been monographed.

Amanita,	**Report 33.**	Leptonia,	
Armillaria,	**Report 43.**	Marasmius,	
Bolbitius,		Mycena,	
Cantharellus,	**Bull. No. 2.**	Naucoria,	
Claudopus,	**Report 39.**	**Omphalia,**	**Report 45.**
Clitocybe,	**Report 59.**	Panaeolus,	
Clitopilus,	**Report 42.**	Panus,	
Collybia,	**Report 49.**	**Paxillus,**	**Bull. No. 2.**
Coprinus,		**Pholiota,**	**Report 61.**
Cortinarius,		**Pleurotus,**	**Report 39.**
Crepidotus,	**Report 39.**	**Pluteolus,**	**Report 46.**
Deconica,		**Pluteus,**	**Report 38.**
Eccilia,		**Psalliota,**	**Report 36.**
Entoloma,	**Report 62.**	**Psathyra,**	**Report 64.**
Flammula,	**Report 50.**	Psathyrella,	
Galera,	**Report 46.**	**Psilocybe,**	**Report 64.**
Gomphidius,		**Russula,**	**Report 60.**
Hebeloma,	**Report 63.**	Schizophyllum,	
Hygrophorus,	**Report 60.**	Stropharia,	
Hypholoma,	**Report 64.**	**Tricholoma,**	**Report 44.**
Inocybe,	**Report 63.**	Trogia,	
Lactarius,	**Report 38.**	Tubaria,	
Lentinus,	**Report 62.**	Volvaria,	
Lepiota,	**Report 35.**		

Professor Peck is exceedingly accomplished and exceptionally genial, a man whom it is always a pleasure to meet. Many weeks have I enjoyed in the museum of Albany in his company, and always look forward with pleasure to my visit with him. No other man occupies a warmer position to-day in the hearts of American mycologists, and all who read these lines will concur in the hope that in the ripeness of intellect and the best of health, Professor Peck may be with us these many years to come.

THE UMBILICAL PLATES OF CLATHROID PHALLOIDS.

Some one, I do not remember who, but it is immaterial, has proposed that phalloids should be divided into two "Natural Orders," the clathroid section, where the young plants are developed from connection with the cortex, and the phalloid section, where the plants are developed from the base of the volva. In cutting open the eggs of the phalloids, two types of volva are found. In the first type, the true phalloid, as in the genus Phallus, etc., the interior of the volva is one continuous, gelatinous mass. (Compare Fig. 131, page 294.) In the second type, thin, white plates are found, dividing the gelatinous portion into sections, and extending from the cortex of the volva to the young plant. These white plates are called cortical plates, but a better name for them would be umbilical plates, as the young phalloid is apparently developed from or through these plates the same way the foetus is developed from or through the umbilical cord.

My thanks are extended to Mr. Willis H. Ropes, Salem, Mass., for opportunity to examine a formalin collection of Lysurus borealis containing a number of eggs. In the egg of Lysurus borealis the umbilical plates extend from the base of the volva to about one-half the circumference, and the markings of these plates are seen on fig. a, which is a photograph, natural size of the base of an egg. The number of plates correspond with the number of arms the specimen will develop. In the very young plants they are attached to the stem, and along the dorsal suture of each arm, or, perhaps, to speak more correctly, the young plants develop from these plates, the attachment being as stated. The arms of Lysurus borealis are wrinkled transversely, excepting on the back of each arm, where there is a longitudinal suture. These sutures might be called umbilical scars, for they correspond with the umbilical scar in the mammal.

Fig. 510

Lysurus borealis.

Photograph, natural size, by Hollis Webster. The specimen on the right has the gleba washed away.

As an illustration of how errors will get started and persist in mycology, years ago Patouillard published Lysurus Mokusin as having the gleba mass attached to the outside of the arms, and he deduced that Anthurus must have it attached to the inner side of the arms. As a matter of fact, there is little relation between Anthurus and Lysurus; Lysurus has free arms at the base of a columnal stem, and Anthurus consists of a hollow tube, having the limb divided into segments and bearing the gleba on the inner side of the segments.

When Professor Burt found Lysurus borealis and noted that it had the gleba on the inner as well as the outer side of the arms, he deduced from Patouillard's article that it must belong to the genus Anthurus, which is an error, as the genus Anthurus does not have arms.

The gleba entirely surrounds the arm of Lysurus borealis, with the exception, of course, of where the umbilical plate is attached to the dorsal suture. Our figure (d bis), which is the enlarged photograph of the section through the young arms, shows very clearly the attachment of this plate. Our figure (e bis), which is a cross-section

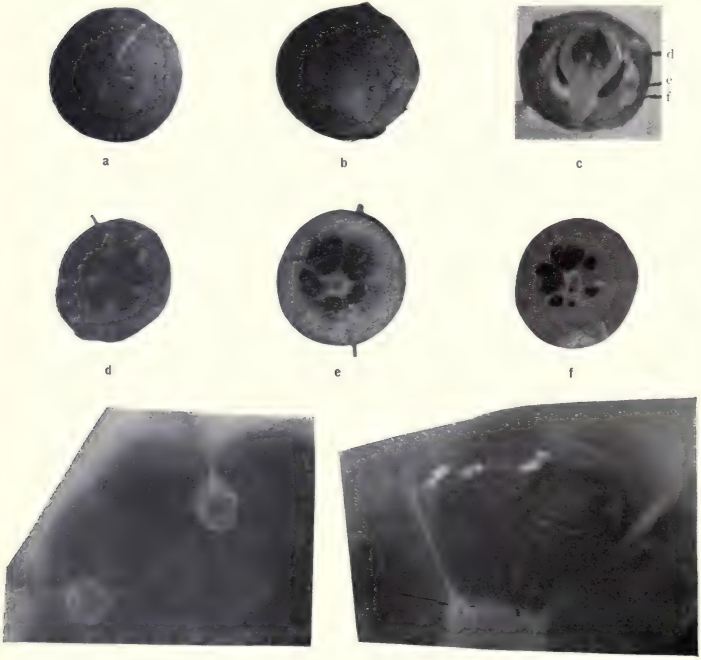


Fig. 511

Lysurus borealis.

EXPLANATION.—a. egg, bottom view showing markings of the plates; b. same from above; c longitudinal section through an egg marked (d, e, f,) where the corresponding cross sections are made; (d and d bis enlarged), showing the gleba surrounding the young arm except where the umbilical plate is attached; e (and e bis enlarged) section below the arms showing the gleba mass between the plates which are here attached to the stem; f. section still lower, near the lower end of the gleba mass, the plates here attached to the stem.

lower down, shows the gleba divided by the same plates that are here attached to the young stem. Our figure (c), which is the longitudinal section of the young egg shows the position of the plant in the egg, and is marked (d, e, f), where the corresponding cross-sections are made. By examining these figures a good idea of the structure of the young Lysurus borealis eggs can be obtained with the relative position of the umbilical plates.

I will add also that since the examination of this formalin material, kindly sent by Mr. Ropes, I am quite convinced that the plant Lysurus borealis is exactly the same as Lysurus Clarazianus, which was well illustrated by Prof. Fischer. The structure of the arm is exactly the same in both plants, to the last wrinkle, as shown in Fischer's plate. I also suspect that it is the same plant as Lysurus Australiensis, only known from unsatisfactory material at Kew.

Notwithstanding that Lysurus borealis does not and never did belong to the genus Anthurus, and that the mistake has been fully explained in our Synopsis of the Phalloids, we still find it called "Anthurus borealis" in "Mycologia" of the present year.

LYSURUS BOREALIS AT CINCINNATI.

Information has reached me that the mysterious Lysurus borealis has occurred around Cincinnati. Mr. F. J. Lodder, who, by the way, a few years ago made a national reputation by practically growing mushrooms on a large scale, informed me of the presence last summer of a mysterious growth on his grounds, which from his description I had no trouble in referring to Lysurus borealis. Mr. Lodder readily recognized the photograph of the phalloid.

The occurrence of Lysurus borealis in America presents one of the most curious problems in connection with plant distribution. Many years ago it was first noticed by Professor Burt at East Galway, N. Y. It has since been collected from a number of other localities, principally from the Eastern States. A list of the main stations was published in Myc. Notes, pp. 183 and 219. Professor Beardslee recently told me that it occurs now around Cleveland in great quantities. It seems to occur in fields where the sod has been turned and rotted.

There are but three stations known for Lysurus borealis in Europe, all of them discoveries of recent years (cfr., Syn. Phalloids, p. 40). We think Lysurus Australiensis as named from Australia is the same plant, and we are quite sure that Lysurus Clarazianus as illustrated from South America is exactly the same. It is probably a South American plant that has just become established in our section.

AN ACRE OF LYSURUS.

By H. C. Beardslee.

The occurrence of Lysurus in Ohio has been noted several times, but one new station in which it was detected in the fall of 1910 seems interesting enough to deserve notice. About an acre of ground in Lake Co., Ohio, had been prepared by turning under a heavy sod and been planted to onions. During August and September a fungus appeared here in profusion which no one had ever observed in that locality before. Upon visiting the field I was much surprised to find the strange plant to be Lysurus borealis.

Its occurrence in Northern Ohio has been noticed before, but the profusion in which it was growing was somewhat disconcerting. The entire field was covered with plants in every stage of development, and the ground was so filled with eggs that it could scarcely be stirred without uncovering great masses of them. It was literally an acre of Lysurus.

I have several times found this plant growing in rotting sod, but its occurrence in such profusion suggests an interesting question. No one had observed it in this locality previously, which with a plant of such distinction would indicate extreme rarity. How are we to account for its immediate appropriation of the entire field when the sod was broken up? The conditions were undoubtedly favorable for its development, but the vast numbers of plants produced so quickly seem hard to explain.

I have observed the same problem in regard to other species of fungi. Three years ago about three acres of woodland which form part of my collecting ground at Asheville was burned over in the late spring. In the fall of the same year the whole tract was covered with fine specimens of Armillaria robusta which I had not observed in that place before and which has not occurred there since except sparingly. It could have been gathered by the bushel and persisted for weeks. For some reason the burned ground was favorable to its growth, but how did it secure such complete possession so quickly?

CYTIDIA TREMELLOSA.

LEGEND.—We have had in hand, for a number of years, a tremelloid plant that we collected in Louisiana and which we have been unable to have determined. We have always supposed that it belonged to the Tremellaceae, but could not satisfy ourselves as to the nature of the basidia, and we were, therefore, unable to determine it generically. We recently sent it to Rev. H. Bourdot, who has made special study of the structure of the resupinate fungi and is expert in that line of work. He informed us that it belongs to the genus "Cytidia, Quélet." As we had no specific name for it, we have given it one in keeping with the custom in these matters. We do not know anything at all about resupinate Thelephoraceae, nor the species, and hence it is evident we are specially qualified to find "new species." We hardly think that it has a specific name, however, for it is quite evident that had it been named in American mycology, it would have been classed as a Tremella, and we have worked over pretty thoroughly the Tremellaceae of America. We have reproduced the structural characters from Rev. Bourdot's letter, together with a diagram showing the structure.

Fig. 512

Cytidia tremellosa.

Natural size: fresh and dried specimens.

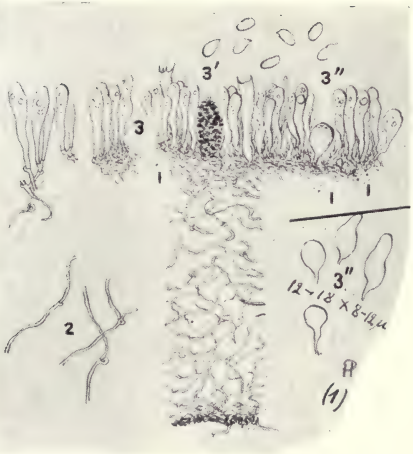


Fig. 513

Cytidia tremellosa. Structure.

Drawing by Rev. Bourdot.

"Votre plante est une espèce de Cytidia. C'est une de ces espèces à trame gélatineuse, qui ont été séparées des Corticies."

Spores 9-11 x 6-7 mic. Basides 45-70 x 8-10 mic. 2-4 stérigmates longs de 4.5-6 mic. Hyphes gélatineuses très sinueuses 1-3 mic. avec boucles souvent ansiformes ou ramuleuses aux cloisons.

(Explanation of the figure 513.)

(1) Hyphes sectionnées transversalement avec parois gélatineuses gonflées (par la Potasse?) jusqu'à 6-10 mic. (2) Diverses formes de boucles des hyphes. (3,3',3",) Espaces (produits par l'écartement des basides) tantôt vides[3]; tantôt remplis d'une matière résineuse jaunâtre[3'], soluble dans les solutions alcalines, émulsionnée par l'acide lactique à chaud; mais plus ordinairement occupés par des organes de la forme des basides trémellinées[3"] (pas vu de cloisons), rappelant les cystides globuleuses de Stereum purpureum. Dans les parties jeunes ces organes sont plus fréquente et passent à la forme des basides.

Les espaces vides[3] étaient vraisemblablement occupés par des organes connue en 3' et 3" qui auront été enlevés par le rasoir.

AMATEUR SPECIES MANUFACTURERS.

"Dear Mr. Lloyd:

"I was glad to receive your last circular and especially to see your list of the blunders of the sponsors of the different fungi. I well remember at Kew seeing old Professor Baker tearing his hair over these amateur manufacturers of species. It seems to be the one idea of the majority of them to multiply names. I well remember a long wrangle with one gentleman who was firmly convinced that if a plant grew in St. Vincent it was impossible for the same plant to grow in St. Lucia, the difference in geographical distribution being sufficient to create a new species. The chief reason for this extraordinary line of thought seems to be that he thought there was a chance of writing John Brown after the two names."—C.

TWO INTERESTING PHALLOIDS FROM AFRICA.

Two phalloids of the greatest interest to me have been received from Edouard Luja, of Congo Belge.

Clathrus Fischeri, a specimen which, though dried, is quite characteristic. Although this plant seems to be frequent and widespread in Africa, it is scantily known in our literature. It corresponds to Clathrus cibarius of New Zealand, having the same tubular structure (viz., the genus Ileodictyon), the same general shape and size, but the meshes are smaller. I question if a photograph of the fresh plant would show much difference from the photograph we have printed (Phalloid Synopsis, page 61) of Clathrus cibarius. The African plant is yellow and the New Zealand plant is white. Clathrus Fischeri was named from a very imperfect specimen in the museum at Paris, from which I could only obtain such a scanty idea that I did not consider it in my Phalloid Synopsis. It was mentioned incidentally on page 62 as an African form (?) of Clathrus cibarius. Then I received alcoholic specimens and color notes from Charles A. O'Connor (cfr. Letter 27), which placed the species on a firm basis, and now Mr. Luja sends nice specimens with color notes ("jaune-orange") that further confirm it. I am glad that Clathrus Fischeri turns out to be a good species.

Fig. 514
Clathrus Camerunensis.

Clathrus Camerunensis.—Mr. Luja sends a specimen of this plant in formalin, from which we have been enabled to make a photograph (fig. 514), the first photograph that has been printed of this species. But Mr. Luja's specimen raises the question if it is not the same species as Clathrus pusillus of Australia. Heretofore we have supposed the difference to be a color distinction, but Mr. Luja's specimen still retains its color, and it is red, not olive. I wish we had a better knowledge of the Australian plant.

BOOKS FOR SALE.

Those desiring to purchase books on American Mycology should communicate with Miss Carrie Herbst, Trexlertown, Pa., who has for sale the library of her father, the late Dr. Herbst. This collection embraces some works that are very hard to obtain, such as Peck's early Reports, Stevenson's British Fungi, etc.

POLYPORUS MYLITTAE,

An article published by Alfred J. Ewart in the Proceedings of the Royal Society of Victoria, 1911, explains the mystery of why the sclerotium of this fungus is so abundant in Australia and so rarely develops fruiting bodies. In order to produce the fruiting body, the sclerotium must be exposed to light as well as heat and moisture. Mr. Ewart developed in four days, by exposure to light, the Polyporus fructification five inches in diameter, on sclerotium that had remained buried for more than two years in the earth. I wish some one would try this method on our American tuckahoe, and see what the result would be.

FOMES LIGNOSUS.

We reproduce a photograph of Fomes lignosus, growing on the roots of a rubber tree. We received the photograph from C. B. Ussher, Java, who wrote as follows:

"This plant was growing on the roots of Hevea rubber tree. The tree was unhealthy in December and the soil was removed from the roots. They were mostly found dead. When the tree died in January, this fungus was found growing on the roots. No doubt the fungus killed the tree."

Fig. 515

Fomes lignosus.

Photograph by C. B. Ussher.

That Fomes lignosus is a destructive parasite of the rubber tree, has been fully brought out by Professor Petch in his latest work on "Diseases of the Rubber Tree." Professor Petch gave a good illustration of the plant, but unfortunately called it Polyporus semitostus, which is due to a misdetermination of one of his predecessors. The type of Polyporus semitostus at Kew is a different plant.

Fomes lignosus was named by Klotzsch from Mauritius, and the type specimen is in a jar at Upsala. Like all common plants, it has been discovered to be a "new species" on numerous occasions. Berkeley called it Fomes contractus; Fries, Fomes Kamphöveneri; Montagne, Fomes Auberianus. It is now a most common fungus in the tropics, but generally takes the lignescent Polyporus form rather than the Fomes form. In fact, I have never seen but one collection that was typically a Fomes.

TRAMETES GILVOIDES.

Entire plant gilvous brown, pileus subresupinate, adnate, the surface of the pileus covered with rigid, brown setae in the same manner as those of Trametes hydnoides. Context gilvous brown. Hymenium with numerous slender setae of the "Hymenochaete" type. Pores small, round, with glancing mouths. Spores globose, 2½ x 3 mic., hyaline (or perhaps pale colored).

Fig. 516.

Trametes gilvoides.

This is a plant I collected (one collection only) on oak branch in Florida in January, 1897. I have never since seen it in any museum, and when I collected it I was not able to get it determined. One "authority" to whom I sent it referred it to Poria contigua (sic), another to Trametes hispida (sic). It has not the most remote resemblance to either species.

It belongs to the section "Hispida" of Trametes, with Trametes hynoides and Trametes hystrix, but departs from all in that section in having setae on the hymenium similar to those of Polyporus gilvus.

"TRAMETES GALLICA."

We present (figure 517) photograph made from a specimen in Monsieur Boudier's herbarium as Trametes gallica, and so interpreted by Monsieur Boudier. It is a very rare form in France, and Monsieur Boudier tells me that in his forty years' experience the species has only come to his attention twice. He considered it a valid species.

The name is based on Fries' change of Bulliard's figure 421. Bulliard illustrated what seems to be a very characteristic plant with large, orbicular pores, under the name Boletus flavus. I think no one has ever found in France the plant exactly corresponding with Bulliard's figure, though the plant that Monsieur Boudier so interprets is probably the same thing, having, however, more elongated pores and being a much thinner plant. The name by Bulliard, Boletus flavus, is taken from Linnaeus, and while no authentic specimen exists of Boletus flavus, it was undoubtedly a foreign species of Hexagona, and most probably the plant that is now known as Hexagona apiaria, named by Persoon. Fries based the name "Trametes gallica" on the figure of Bulliard, having, of course, never met the plant; nor do I think he knew what Linnaeus' plant was, but he assumed they were not the same plant, and changed the name of Bulliard's plate.

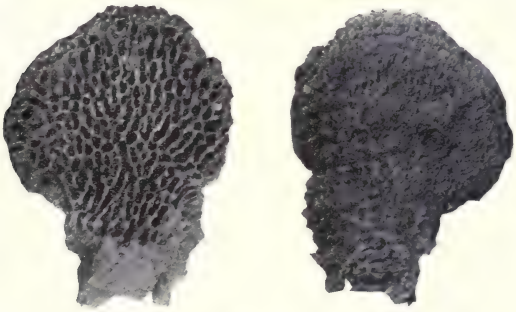


Fig 517

Trametes gallica.

Bresadola interprets Bulliard's figure 421 as being Trametes hispida, and would apply the name of Trametes flava to Trametes hispida on that account. While Monsieur Boudier would not agree, I am disposed to think that the plant he found is really the thin, large-pored form of the common Trametes hispida. At the same time, I feel that it is worthy of a name as a separate form. At least, in my opinion, there is no reason for giving the name Trametes flava to the common Trametes hispida on the strength of Bulliard's figure. Assuming that the plant as figured by Bulliard is the same plant, the name used by Bulliard has no validity, as at the best it is only a misdetermination on Bulliard's part. I think Trametes hispida, as this plant is commonly known in the mycology of Europe, is the name it should retain. I see no advantage in needlessly changing established and unquestioned names, particularly when only uncertain evidence exists.

PHOTOGRAPH OF ASEROE RUBRA.

At the time we issued our phalloid pamphlet, we knew of no photograph of Aseroe rubra and reproduced the original drawing, which was made about one hundred years ago and was very crude. We were pleased to receive from Mr. A. S. Hamilton, Rockwood, Australia, an excellent photograph of Aseroe rubra, natural size, which we reproduce above.

The phalloids of the world will never be really known until all of them have been illustrated with characteristic photographs, and our thanks are especially due to Mr. Hamilton. The photographs represent a side view of the plant and a top view, looking down, showing the position of the gleba.

Fig. 518

Aseroe rubra.

Photograph by A. S. Hamilton.

FOMES JUNIPERINUS.

In the 21st Bulletin of Div. of Veg. Physiology and Pathology, Dr. H. von Schrenk gives an exhaustive account of a disease called the "white rot," which does considerable damage to the wood of the Red Cedar of our Southern States. Notwithstanding that the disease is quite destructive and a large percentage of the logs is affected with it, it rarely produces the fruiting bodies, and but two collections were recorded, one by Miss Price, at Bowling Green, Ky., and the other by Dr. von Schrenk, at Murfreesboro, Tenn. The fungus is a Fomes which Dr. von Schrenk names Fomes juniperinus, and my thanks are due to Dr. von Schrenk for privilege of examining the only type specimen in existence. The remarkable part about this Fomes is the reddish color of the context, no other species being known in the United States with reddish context. Externally, it resembles the common Fomes igniarius, having a black, rimose surface with no distinct crust. Internally, it is latericeous, or pale brick color. The pores are indistinctly stratified, small, round, but have become elongated by the tearing of the walls. The spores are abundant, pale-colored, globose, 4-5 mic. There are no setae or cystidia.

Dr. von Schrenk suggests that it may be a form of Fomes fomentarius, but that is impossible, as it has nothing in common with Fomes fomentarius. In the museums, however, Fomes igniarius is often misdetermined as Fomes fomentarius, which is probably the source of this statement.

The account of Fomes juniperinus in North American Flora was evidently made up from the original publication and reproduces a number of errors. The spores are merely stated to be "reddish brown, smooth," (which was copied verbatim). They are so pale-colored that they appear hyaline under a low power. "Spines blunt," etc. (also copied). The plant has no "spines" or cystidia, as originally stated. I think accidental, projecting hyphae have been so mistaken.

I have long suspected that Fomes juniperinus is the same as Fomes Demidoffii, known from a single specimen in the Museum at Paris from Russia. Both are rare plants, the former known from but few collections, the latter from the type only in the museum at Paris. Both grow on the red cedar (Juniperinus). Both have a black, rimose surface. Both have reddish context and exactly the same spores. In fact, they are the same plant in every particular, and Fomes Demidoffii is "prior," if one wants to use such an uncouth name. For my part, I do not intend to do so.

While the plant is rare in our Southern States, it is quite common (I am told by Prof. Long) in the Southwest (New Mexico), growing on various species of Juniperinus. Although it is exactly the same plant as Fomes Juniperinus, and fruiting specimens can not be distinguished by any character, Mr. Murrill, with his usual liberality, discovered that the New Mexican plant was a "new species," which he calls Fomes Earlei.

Messrs. Hedgcock and Long have recently published that Fomes Juniperinus and Fomes Earlei produce different kinds of "rots" in the host. While I know nothing on this subject, I venture it will be found to be a mistake of some kind when the real truth is learned. I feel so sure that the fruiting bodies are absolutely the same that I question if it can produce a different "rot" in different localities, though I can not say to the contrary.

CORRECTION.

In my recent Synopsis of the Stipitate Polyporoids a bad error was made on page 156 in my synonyms. It was the result of mix of "copy," imbricatus and intybaceus having been run together in taking off the copy. It should read as follows:—

imbricatus, Europe, Bulliard. Generally accepted to be based on an abnormal, bleached specimen of sulphureus.

intybaceus Europe, Fries. Said by Fries to be rare and local in Sweden and is unknown to any one now. I think it was based on frondosus that grew horizontal, hence the lobes are more flat. The common plant called intybaceus in England is surely frondosus. Most modern books carry both, but I think no one knows two different plants to correspond.

Fig. 475 labeled "Lentus ciliatus" should be "Lentus ciliaris," as plant is called in the text.

The pores of fusco-maculatus (p. 130) should be described as "small" not "large" as inadvertently printed. The photograph of the pores (just above the text) is evidence of this error.

A MUCH NAMED AGARIC.

By H. C. Beardslee.

A number of our fungi have certainly been blessed with an abundance of names, appearing with great frequency as "new species." One very attractive species, which is found occasionally at Asheville, seems, however, to be conspicuous in this regard. Usually the various authors agree fairly well as to genus, separating the "new species" because of some minor or mistaken points of difference. The plant to which I refer seems unique in being referred to four different genera, and also to four of the great groups based on spore color. It figures as Lepiota, Inocybe, Psalliota, and Lepista, which would give it nearly all the spore colors possible. I suspect it also of figuring as an American "new species" in still a fifth genus, though I have seen no specimens to verify this.

Fig 519

This plant is Bulliard's Lepiota haematosperma, figured by Cooke as Inocybe echinata, described by Stevenson as Psalliota echinata, and considered by Bresadola as rather a Lepista.

The plant is very striking, and in perfection is one of our handsomest species. With us it is not large—an inch to two and a half inches tall—with a pileus a half inch to an inch and a half broad. The pileus is dark gray, and is covered with a mealy coat of the same color. This covering leaves an annulus as the plant develops, which very quickly disappears, leaving no trace behind. In age the whole plant is smooth and bare. The gills are strongly suggestive of our common field mushroom, though of a darker red. The spores are dingy or red, according to circumstances, and are 6 by 4 mic.

One can readily understand the reference of this species to Psalliota, for a perfect specimen would at once be pronounced a gray Psalliota and confidently looked for in that genus until the spore print had been obtained. Why Inocybe is hard to guess. It has not the correct spore color; nor has it any of the usual characteristics of that genus. It certainly is not a characteristic Lepiota. The photograph shows its ordinary appearance. It is rare in America.

POLYPORUS TUBERASTER IN JAPAN.

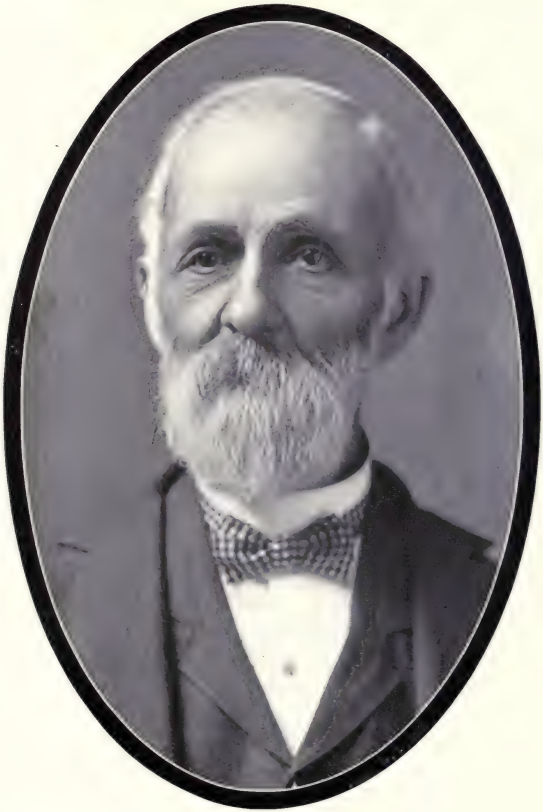
"I have read with great interest your note on Polyporus tuberaster, which occurs also in this country. Several years ago Dr. Shirai, Professor of Pathology in the Agricultural College, Tokyo University, found that this occurred in Yomagata and was quite the same as a Chinese fungus which is used in medicine in that country even now. The Chinese use only the sclerotium of the fungus in medicine. Dr. Shirai cultivates the sclerotium in a pot and is getting two or three fructifications every year." S. Kawamura, Botanic Institution, Tokyo, Japan.

MYCOLOGICAL NOTES.

BY C. G. LLOYD.

No. 39.

CINCINNATI, O. DECEMBER, 1915.



J. B. Ellis.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

Mycological Notes, No. 39.

After sleeping peacefully for three long years, we have again concluded to issue a number of Mycological Notes. Rather, we have not been asleep in the meantime, having published several monographs, but Mycological Notes has. This number will mostly be devoted to illustrating the rare plants and novelties that have lately reached us, viz.:

CORDYCEPS CRAIGII, FROM ERIC CRAIG, NEW ZEALAND.
CORDYCEPS AMAZONICA, FROM REV. C. TORREND, BRAZIL.
CORDYCEPS NUTANS, FROM J. UMEMURA, JAPAN.
CORDYCEPS ROBERTSII, FROM GEORGE BROWN, NEW ZEALAND.
CORDYCEPS SOBOLIFERA, FROM S. KAWAMURA, JAPAN.
CORDYCEPS MELOLONTHAE, FROM DR. M. S. WHETSTONE, MINNESOTA.
BOTRYTIS (SP.), FROM B. T. HARVEY, COLORADO.
POLYPORUS MYLITTAE, FROM E. CHEEL, AUSTRALIA.
XYLARIA AXIFERA, FROM REV. C. TORREND, BRAZIL.
EXIDIA PURPUREO-CINEREA, FROM MISS A. V. DUTHIE, SOUTH AFRICA.
EXIDIA CAESPITOSA, FROM MISS A. V. DUTHIE, SOUTH AFRICA.
STROBILOMYCES PALLIDUS, FROM F. A. WOLF, ALABAMA.
ARACHNION SCLERODERMA, FROM MISS A. V. DUTHIE, SOUTH AFRICA.
SEBACINA DENDROIDEA, PHOTOGRAPH FROM BURTT LEEPER, SALEM, OHIO.

J. B. ELLIS.

We present a photograph of Professor J. B. Ellis, sent us some time since, by Mrs. Dallas, since deceased. Through an error, it was filed in our library without being brought to my personal knowledge, and has only recently been found.

It was my privilege to meet Professor Ellis during the latter years of his life. He was exceedingly timid and shrinking, but possessed of a charming personality, and by his lovable disposition endeared himself to all who knew him. I never went East without going to see him for a few hours, and always came away the better for the visit. It is not here the place to discuss his part in American mycology. While hampered by lack of published literature and museum facilities, he yet accomplished a vast amount of work, and did it as best he could. While I was aware of many mistakes that he made, I never, during his lifetime, mentioned one of them in print. So earnest and honest was he in his work, and possessed of such a lovable disposition, that it was impossible for me to say a word that might have hurt his feelings in any way. I do not know of any other person towards whom I have felt exactly as I did towards Mr. Ellis, but consideration for his sensitive disposition and the high regard in which I held him personally, prompted me thus to make of him an exception.

ADDITIONAL NOTES ON CORDYCEPS.

We are particularly interested in Cordyceps. They are most curious plants, usually developed from the bodies of some insect, larva, or pupa. I trust any one who finds specimens will favor me by simply drying them and sending to my address. The tropical species are very imperfectly known.

CORDYCEPS ROBERTSII. Additional notes on this species are afforded by an article published twenty-five years ago by Eric Craig, now an elderly gentleman residing at Auckland, New Zealand. As I have only the clipping I do not know where it was originally published, and the article has not been brought to the notice of the mycologists who have written on the subject. We summarize the additional information afforded by this article. The host is the caterpillar of Hepialus virescens, which, after its chrysalis state, becomes one of the night butterflies of New Zealand. The Cordyceps are eaten by the natives and called in their native Maori language, Pepeaweto and Hoteto. It is chiefly gathered around the roots of the rata tree, though it occurs in forests where no rata grows. There are in New Zealand two other varieties, one called by the natives *Aweto*, is found in the Kumara beds; the other was found in the open bush, but rarely.

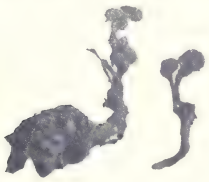
Section enlarged of club.

Fig. 718
Cordyceps Craigii.

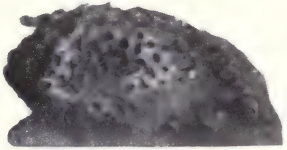
CORDYCEPS CRAIGII, FROM ERIC CRAIG, NEW ZEALAND. (Fig. 718.) Clubs solitary, growing from the heads of the

host. Stem 3-4 mm. thick, 3-4 cm. long. Fertile portion black (when dry) flattened and many curved (falcate), 2-3 cm. long, 8-10 mm. wide, 3-4 mm. thick. Surface smooth, or punctate with the mouths of the perithecia. Perithecia imbedded. Spores broken in the asci, into separable, short, secondary spores about 3 mic. long. The name of the host is unknown to me, but it is no doubt the larva of some Lepiodopterous insect. There is but one similar species named, viz., Cordyceps falcata, known only from one collection, from India, and preserved at Kew. At first view it might be taken for this species, having similar size, shape and host. Cordyceps falcata does not grow solitary. The type had two fruits which were "caespitose" according to Berkeley's definition, but the main difference is that the perithecia of Cordyceps falcata are not imbedded but superficial, and according to accounts fall away as they do in Cordyceps Robertsii. My photographs seem to bear this out. Massee states, "The head is falcate in all the specimens present in the Herbarium." As "all the specimens" ever present was a single one, the argument for me is not very convincing.

Cordyceps Craigii was collected by Eric Craig in "old and abandoned Kumara beds," and is very rare. "Kumara," according to the dictionary, was the aboriginal name for the sweet potato. Mr. Craig also sends two specimens collected in the bush which are very similar and probably the same species. I could not say positively, however, from the specimens, as they are both immature.



Cordyceps amazonica.



Section of head enlarged.

Fig. 719

CORDYCEPS AMAZONICA, FROM REV. C. TORREND, BRAZIL. (Fig. 719.) All we know of this plant is the figure and publication of Hennings, and we cannot trust very far the accuracy of his work. There are discrepancies. The heads are globose, not ovate, as shown. Instead of being a simple club, the stems are branched; in this specimen one with two branches, bearing a head on each branch. The other with a cluster of axillary heads (4) and two terminal heads. The secondary spores are 5-6 mic. Ordinarily, of course, it would be a "new species," but growing on the same host (Locusta) in the same region and being very similar, the probabilities are that it is the same.

CORDYCEPS ROBERTSII, FROM GEORGE BROWN, NEW ZEALAND. At the time we wrote our pamphlet on Australian

Cordyceps, we had no specimen, this being the first we have received. The perithecia are brown, easily rubbed off the axis, and measure 225 x 450 mic. The spores are tardily broken into secondary spores, and are mostly entire in the asci. The secondary spores are about 2½ x 2½ mic.

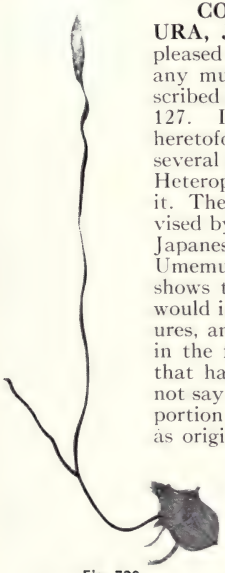


Fig. 720
Cordyceps nutans.

CORDYCEPS NUTANS, FROM J. UMEMURA, JAPAN. (Fig. 720.) We are particularly pleased to get this specimen, for we have seen none in any museum in Europe. It was originally well described and figured in Bull. Myc., France, 1887, page 127. It came from Japan, and we believe is only heretofore known from the original. It is peculiar in several things. It is the only Cordyceps recorded on a Heteroptera or "true bug," as entomologists designate it. The insect belongs to the Pentatomidae, I am advised by Prof. Osborn, but does not appear in list of Japanese Hemiptera published by Uhler. Mr. Umemura sends a colored figure (fig. 720), which shows the club erect, not "nodding," as its name would indicate. He sends two specimens and two figures, and all four show a branching stem, as shown in the figure. Whether this represents another club that has been broken off, or a sterile branch, I can not say. The stem is black, but the club and upper portion of the stem is orange rather than "violet," as originally described. As the material is scanty, I do not wish to cut the specimen. The secondary spores were described as 1-1½ x 10-15 mic., which are unusually long. We hope our Japanese friends who find this will send us more ample material, as we should like to examine it under the microscope, and should also like an explanation of that branching stem.

CORDYCEPS SOBOLIFERA, FROM S. KAWAMURA, JAPAN. (Fig. 721.) This is a most welcome addition to my collection. The species was well illustrated by Tulasne, from West Indian material, but no specimen is found in his herbarium. In fact, I found no specimen in any museum in Europe, and I believe the specimen just received is the only one in any museum of America or Europe.

Fig. 721
Cordyceps sobolifera.

Cordyceps sobolifera was named from the West Indies in 1763. In the very early times several papers were published regarding it, as in those days they supposed it to be a mutation of an insect into a plant. It was said to be frequent in several West Indian islands, but no specimen seems to have reached Europe. Dr. Kawamura writes me that it is common in Japan. The species was not included in Matsumura's list.

CORDYCEPS MELOLONTHAE, FROM DR. M. S. WHETSTONE, MINNESOTA. (Fig. 724.) This is our largest and not rare species of Cordyceps, though our figure is made from a small, young specimen. It grows in the West Indies, and is more frequent in the Southern United States. The original reference was based on young, undeveloped specimens, such as this one from Dr. Whetstone, and its identity has not been recognized in any of the recent works on Cordyceps. It passes in American tradition as Cordyceps herculea, based on Schweinitz's record of Sphaeria herculea, which turned out to be a "puff-ball" (sic) not, a "Sphaeria" at all. (Cfr. Note 98, Letter 47.) I have long known that it could not be Schweinitz's species, for I knew his specimen was not a Cordyceps, but I had no name for the species until my last trip to Kew, when I found Cooke had named it Cordyceps insignis.

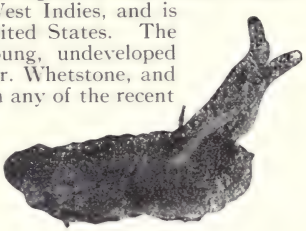


Fig. 722
Cordyceps melolonthae (young).

A perfect specimen of Cordyceps melolonthae under the name Torubia herculea is given by Hard, figure 491. Such symmetrical specimens are rarely developed. Usually the heads are imperfect, and many specimens are collected young, before the fertile portion begins to form.

The first notice of this species appears to have been by Jacob Cist in 1824 in an account of the May bug. He figures the bug and its larva, and states that it is not unusual to find attached to the larva a number of "vegetable sprouts." He figures these "sprouts," and the figure is an evident attempt to illustrate a young growth of this Cordyceps. Tulasne, in his monograph of Cordyceps (or Torubia, as he called it), named the figure Torubia Melolonthae, though Tulasne never saw a specimen.

The host is the larva of the May bug or "June bug," as it is also called. It is a large, white larva with a brown head, known as the "white grub," and often a pest of the farmers, living on roots of grass, corn, etc., and causing considerable damage. Formerly it was put in the genus Melolontha, though in the current, entomological books it is classed as Lachnosterna fusca.

BOTRYTIS (SP.), FROM B. T. HARVEY, COLORADO. (Fig. 723.) A white mold growing on the larva of Colloides nobilis, which is a round head borer in dead roots of scrub white oak. The Botrytis forms a white mold with numerous minute, globose, hyaline spores 1½-2 mic. in diameter. On cutting the larva, I find the inside a complete sclerotium, and I doubt not that this Botrytis is a preliminary stage of some Cordyceps. As we have no species of Cordyceps recorded from this host, I hope Professor Harvey will keep a close watch for the Cordyceps form.

Fig. 723
Botrytis.

THE GENUS MUCRONELLA.

This genus consists of little awl-shaped teeth, growing gregariously without a common subiculum. In early days it was classed as a resupinate Hydnum. Fries separated it (Summ. Veg. Scand.) under the name Mucronia, afterwards changed to Mucronella, and still include it with Hydnaceous plants. As each tooth is separate and distinct and does not spring from a common subiculum, as do the truly resupinate Hydnums, I think each should be considered as a distinct plant, and in that view should be classed in Clavariaceae. Mucronellas grow on the under side of logs and are rather rare. There are three species in Europe, all recorded (correctly?) in the United States, and in addition Peck has named two.

Fries got an idea somewhere that each basidium only bore one spore and made that a character of the genus. It does not hold true in the only fresh species I have examined (M. aggregata), and I doubt if it does in any. I also think that some of the species of Mucronella will be rearranged in other genera when they are better known.

The genus may be divided into two sections:

1st, With free teeth, gregarious.

2nd, With teeth fasciculate at base.

The first section is for me the true genus, the second section, I believe, would be better in the genus Pterula.

SECTION 1. TEETH FREE AT BASE.

MUCRONELLA AGGREGATA. (Figs. 724 and 725.) White with a yellow cast in drying. Densely gregarious, without subiculum. Teeth about a mm. long, acute, smooth, no cystidia. Basidia 4 spored. Spores 4 x 6, hyaline, smooth, with granular contents. This grew on old pine log. Our figure 725 (enlarged six times) will give an idea of the plant such as no description can. We collected the plant several times in Sweden and have a specimen from L. O. Overholts, Ohio. Peck also records it.

Fig. 724

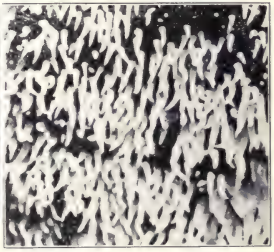


Fig. 725

Mucronella aggregata, Fig. 724 natural size. Fig. 725 enlarged six times.

ILLUSTRATIONS.—Fig. 724 natural size, fig. 725 enlarged six times. Patouillard, Fig. 680 (as Mucronella calva in error) very good, excepting spores not globose as shown. Fries Icon. t. 194 inaccurate. Teeth are too blunt, also show an indication of subiculum which does not exist.

SYNONYMS.—Mucronella abnormalis, described by Hennings from Europe, seems from figure to be Mucronella aggregata, neither "abnormal" nor unusual.

MUCRONELLA MINUTISSIMA. Same as the preceding excepting the minute size, hardly visible to the eye, and teeth not over one third as long. I collected it recently at Eglon, West Va. I make the spores 4 x 6, not 2½ x 4, as recorded by Peck. It forms little white patches on under side of moist pine.

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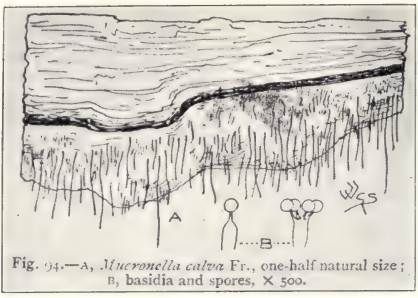


Fig. 94.—A, *Mucronella calva* Fr., one-half natural size; B, basidia and spores, × 500.

Fig. 726
Mucronella calva reproduced from Smith.

MUCRONELLA CALVA. (Fig. 726.) Teeth slender, scattered, from a quarter to an inch long, whitish, then grey. Subiculum (teste Smith) a very thin film that soon disappears. This is unknown to me excepting from the books. I reproduce Smith's figure, which I judge is correct as to general appearance and more characteristic than the original by A. & S. Fries got an impression that it had one spore basidium, and Smith improved on it by assigning "1 to 4" spores, and draws his figures to show it, an obvious bull on the face of it. Men who draw figures of ideas instead of facts are always making such breaks. While I have never seen the plant, I surmise that it is a Calocera and that its basidia will be found to be furcate, but if the basidia are clavate as Smith shows them, then the plant is a better Pterula. The name calva means a bald head with a few scattered hairs, and from Smith's figure seems quite appropriate to the plant.

SECTION 2ND. TEETH FASCICULATE AT BASE.

I believe this section is better classed as Pterula.

MUCRONELLA FASCICULARIS. (Fig. 727.) Teeth slender, caespitose-fasciculate from a common base, pendant, drying reddish, about a cm. long. Spores hyaline, globose, 8-10 mic., apiculate. This was figured by A. & S. many years ago. I have seen it rarely in the museums, but have no specimens from Europe or the United States. I collected it in Samoa, and my specimens were described as Pterula fasciculata (Myc. Notes, p. 50). I do not question that it is the same as the European plant. At least it agrees well with the original figure. It appears to be very rare in Europe and has been recorded from the United States. I be-

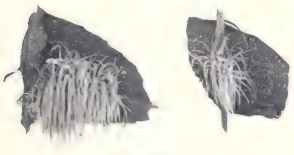


Fig. 727

lieve Mucronella fascicularis should be classed as a Pterula, as Bresadola classed my Samoa collection. Certainly it is cogeneric with several tropical species, as Pterula Winkleriana and Pterula Sprucei (which, however, passes as a Hydnum in Saccardo). The substance is rigid and cartilaginous, not soft and fleshy as in preceding section.

ILLUSTRATIONS.—Fig. 727, made from fresh specimens in Samoa. A. & S. t. 10, fig. 9, the original illustration of Europe very good.

MUCRONELLA ULMI. Described by Peck growing on Elm. It is similar to Mucronella fascicularis, in its habits of growth, but is much smaller with teeth 1 to 1½ lines long and fewer in a fascicule.

RARE SPECIES OF FUNGI RECEIVED FROM CORRESPONDENTS.

POLYPORUS MYLITTAE, FROM E. CHEEL, AUSTRALIA. (Figs. 728 to 732.) There occurs in Australia a frequent tuberaceous growth, which was used by the natives as food and called "native bread" or "blackfellow's bread." While it was supposed to be of fungal origin, its nature was unknown for many years, and Berkeley (in 1839), presuming that it belonged to the Tuberaceae, although he records that he could not find any spores, named it Mylitta australis. It was compiled in Vol. 8, Saccardo under the uncertain genera.

Fig. 728

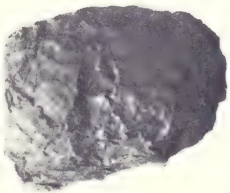


Fig. 729

Fig. 730

Fig. 731

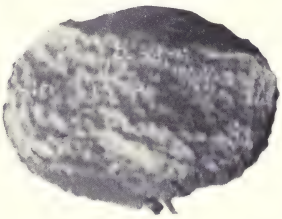


Fig. 732

Fig. 728 a small plant. Fig. 729 sclerotium exterior. Fig. 730 mycelial base of plant.
Fig. 731 top of pileus. Fig. 732 section of sclerotium.

The exact nature of this growth was a mystery until 1885, when H. T. Tisdall found specimens that had developed fructifications of a

Polyporus and gave an account of it in the Victorian Naturalist. Specimens were sent to Kew and named Polyporus Mylittae (1892). These are the finest fruiting bodies I have seen. I found no specimen at Kew, but at the British Museum is a photograph of a sclerotium bearing several deformed sporophores. The specimens from Mr. Cheel are regular and perfect. As the original description is inaccurate in several particulars, we would describe it as follows:

Pileus 2-4 cm., with a sulcate, minutely tomentose surface. Color raw umber (brown). Flesh dry, subligneous, in two layers, each 1 to 2 mm. thick, the upper light brown, the lower white. Stipe mesopodial, 5-10 mm. thick, 2-3 cm. long, deformed. Pores small, round or irregular, 2 to 3 to a mm., 2-3 mm. long. Spores abundant, cylindrical, 2 x 6 mic., hyaline, smooth.

The fruiting bodies are attached to the sclerotia by thick, white, branched, mycelial cords, that permeate the substance of the sclerotia.

As there is not a specimen of Polyporus Mylittae, as far as we have found in other museums of Europe or the United States, it is needless to add that we are particularly glad to get these from Mr. Cheel. The species was included in our Synopsis in Section 38 (Ovinus). It should be moved to Section 8 (Lignosus).

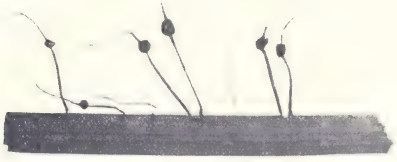


Fig. 733
Xylaria axifera.

XYLARIA AXIFERA, FROM REV. C. TORREND, BRAZIL. (Fig. 733.) There are two similar and most beautiful little species of Xylaria in Brazil that have been confused and given (in error) by Theissen as synonyms. Both were named by Montagne, viz., Xylaria axifera and Xylaria aristata. Both have filiform stems, which are prolonged beyond the little, globose or subglobose heads. They may be distinguished as follows:

Xylaria axifera has always smooth, globose heads, pale stems, indistinct ostioles, and few perithecia, and grows on the dead stems of herbaceous plants.

Xylaria aristata has usually oblong, tubercular heads, black stems, prominent ostioles, and grows on dead leaves.

I found no spores in sections of either that I examined. I have a nice collection of Xylaria aristata from Madame Anna Brockes and of Xylaria axifera from Rev. C. Torrend.

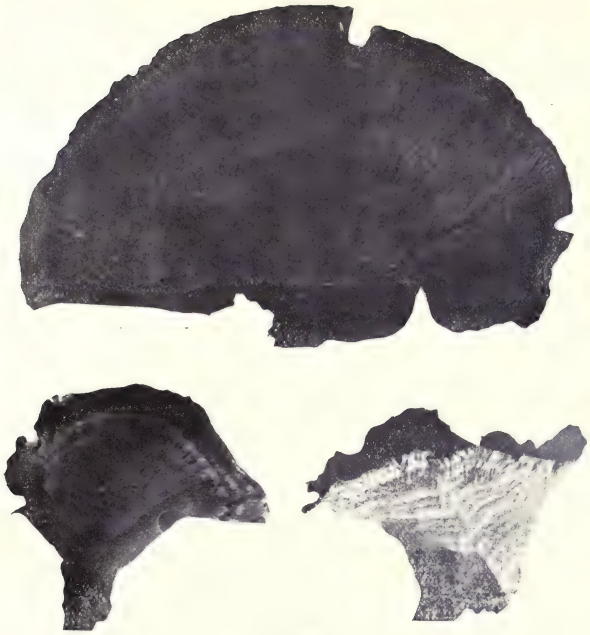


Fig. 734
Cladoderris Floridana.

CLADODERRIS FLORIDANA. (Fig. 734.) Usually growing on top of log, and then cup-shaped with short stipe. When on the side of log flabelliform or orbicular, reduced to a short stipe-like attachment at the base. Upper surface reddish brown, zoned, with appressed, compact, thin, tomentose pad near base. Hymenial surface reddish brown, densely, minutely papillate, disposed in narrow ridges, but not with the branching, strong veins of other species of Cladoderris. Cystidia none. Spores compressed, globose 2½ x 3, hyaline, smooth, with a small gutta near the end.

Growing on frondose wood and quite rare at Bayard, Florida.

As only recently I hunted up all the species of Cladoderris in the museums of Europe, and expressed the opinion that but one valid species had been named in the last sixty years, I was a little surprised to find one growing in Florida.

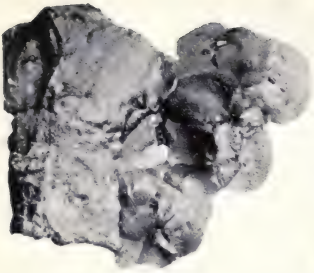


Fig. 735

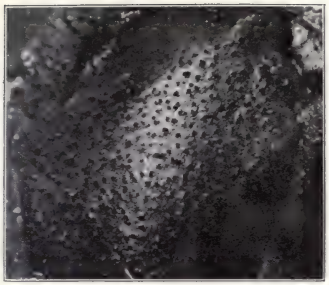


Fig. 736

Exidia purpureo-cinerea (Fig. 736 enlarged surface showing the papillae).

EXIDIA PURPUREO-CINEREA, FROM MISS A. V. DUTHIE, SOUTH AFRICA. (Fig. 735.) We determine this from the description and the fact that it was named from South Africa. The short diagnosis does not tell much, but it is probably correct. The type is at Berlin, but I am not able to tell much about it. We noted at once that it was not a European species, differing in its mode of growth, its paler color and the dense, minute papillae from Exidia glandulosa, its nearest relative in Europe. It is a true Exidia with globose, cruciate, pale colored basidia, 10 mic. in diameter, and typical papillae. The spores are also typical of the genus, 6 x 10 reniform, subhyaline, with granular contents. To our eye, there is nothing purple about it. The types at Berlin are very poor, and we think these are the only good specimens in any museum.

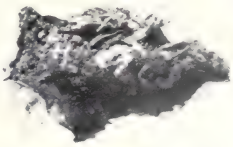


Fig. 737

Exidia caespitosa. (The figure on the right shows dried plant as received, before soaking out).

EXIDIA CAESPITOSA, FROM MISS A. V. DUTHIE, SOUTH AFRICA. (Fig. 737.) Truncate, densely caespitose, so that it appears cerebriform. Color pale, amber brown. Imbedded near the surface are slender, broken, deeply colored ducts (gloeocystidia). Basidia not found. Spores not seen. This species has same color and papillae as the Exidia purpureo-cinerea, differing in shape and structure. The form is like that of Exidia truncata of Europe, but its caespitose manner of growth, much paler color and smaller size all distinguish it.

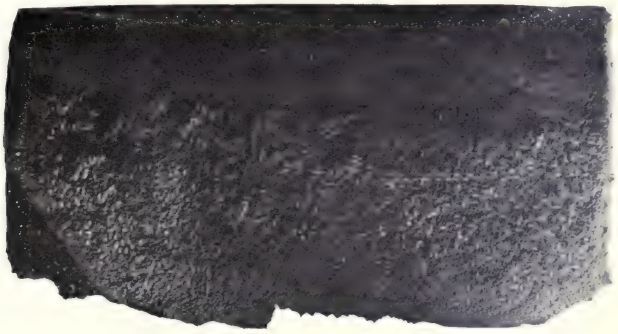


Fig. 738
Phlebia meruloides.

PHLEBIA MERULOIDES. (Fig. 738.) Resupinate. Color Dresden Brown, margin narrow, paler, thin, not strongly distinct. Hymenium meruloid (Fig. 739 enlarged), same configuration as Merulius lacrymans. Spores 3x5, hyaline, smooth, slightly curved. I collected this recently at Eglon, W. Va. It grew on rather firm, decorticate pole, lying some feet from the ground over a small stream. It was a puzzle to me, for while the hymenium was meruloid, it was so different in texture and appearance from all the Merulius species that I could not believe it was a Merulius. On drying, it becomes a Phlebia and the texture, flesh and appearance are of dried Phlebia radiata, and so close to that plant that notwithstanding its meruloid hymenium when fresh, I should put it in Phlebia. This also throws some light on the relations of the genus Phlebia. Fries classes it in Hydnaceae. I have thought it was better in Thelephoraceae. Patouillard places it with Merulius. I think now Patouillard is right. For me it is a degenerate Polyporoid.

Fig. 739
(Pores enlarged.)

STROBILOMYCES PALLIDUS, FROM F. A. WOLF, ALABAMA. (Fig. 740.) We have received from our Southern States what appears to us to be the above species, heretofore only known from Australia, and an addition to our scanty Strobilomyces native flora. The common Strobilomyces strobilaceus of the northern States has dark, fuliginous scales, and we were impressed at once with the pale scales of these specimens. On examination, we find it has entirely different spores, viz.: oblong, 7 x 20 mic., colored, smooth, with fine striations, and on comparison seems to me to be same as the Australian species, excepting a more slender stem. Berkeley based the genus Strobilomyces on the globose spores (cfr. Note 82, Letter 45), hence this plant does not belong to the genus, and our friend McGinty proposes for it the name Strobilofungus pallidus (Cooke) McGinty. However, as by use the name Strobilomyces has acquired a different meaning from the original definition (cfr. note cited), we believe it would be better to allow it to stand.

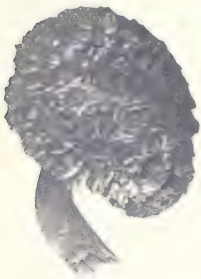


Fig. 740
Strobilomyces pallidus.

There are several species of Strobilomyces in Australia, but Strobilomyces strobilaceus (and a doubtful species S. floccopus) are the only species heretofore attributed to United States or Europe.

ARACHNION SCLERODERMA, FROM MISS A. V. DUTHIE, SOUTH AFRICA.—Peridium globose, 1-1½ cm. in diameter, with a strong, rooting base. Sterile base, none. Peridium thin, with large, irregular warts on the order of the warts of Scleroderma aurantiacum. Gleba greenish olive. Peridioles irregular, both in size and shape, from globose to narrowly elongated, or obtusely triangular, 60-300 mic. in diameter. Spores globose, or slightly oval, smooth, mostly pedicellate, with slender pedicels 16-20 mic. long.

Fig. 741

I have worked with puff balls now for about fifteen years, and of the many hundred specimens received, I never have gotten another that is as distinctly novel as this plant. The genus Arachnion heretofore, like the genus Battarrea, and the genus Polysaccum, has consisted of practically one polymorphic species, Arachnion album, plants varying slightly in minor details, but really the same thing. A full account of this species was given in Mycological Notes, page 252. Arachnion Scleroderma is nearly the same as to microscopic characters, but so different in its grosser characters, that I thought at first it was a Scleroderma.

SEBACINA DENDROIDEA.—We reproduce (fig. 742) a photograph of this curious plant made by Burtt Leeper, Salem, Ohio. It is a rather rare plant in the United States, and is always found growing on the hymenial face of Fomes applanatus or the allied species,

Fomes leucophaeus. Its book history has been most confusing, and we were much interested in straightening out the tangled threads in our last visit to Kew. We learned the plant years ago from Morgan, who had sent it to Cooke, and Cooke named it for him, "Thelephora dendritica, B. & C." As there is no Thelephora dendritica given in Saccardo, and as the only plant so named by Persoon years ago is

Fig. 742
Sebacina dendroidea, growing on the hymenial face of Fomes applanatus. Photographed by Burtt Leeper, Salem, Ohio.

now called Cladoderris dendritica and evidently not this plant, Morgan was much mystified over it. He never published it. I found at Kew that the original specimen reached Berkeley from Venezuela, and was named by him in manuscript, "Stereum dendriticum, B. & C." He did not publish it, however, until he got it from Ceylon, and then he published it as Hymenochaete dendroidea, with incidental reference to the Venezuelean specimen, but none to the label on his previous specimen. Cooke, in Grevillea, claimed that Hymenochaete dendroidea should be called Thelephora dendroidea, and it was so compiled by Saccardo.

As to the proper classification of the plant, I am in doubt, as I do not know either its spores or its basidia. I do not question, however, that it is a Sebacina, from its habits of growth. I have never collected the plant fresh, and am unable in the dried specimen to find either spores or basidia. I presume that Prof. Burt will enlighten us on the subject some day, if we live long enough. The dried specimens are always contaminated with the colored Ganodermus spores

of the host, and showing the scanty knowledge Cooke had of the subject, I have seen somewhere a figure by him, illustrating these spores as the spores of the plant. In fact, I surmise that Berkeley must have thought they were "spines" when he classified it as Hymenochaete (sic).

As further illustrating the wide distribution of plants, this curious growth came originally from Venezuela, then it was found in Ceylon, and then in the United States. Berkeley had it from Venezuela and Ceylon, and Petch tells me he finds it frequent in Ceylon. I have it from Henri Perrier de la Bathie, Madagascar. Morgan found it around Cincinnati; I never did, but have specimens from J. W. Huntington, Massachusetts; Mrs. Hannah Streeter, Pennsylvania; A. P. Morgan, Ohio; W. H. Ballou, New York, and Burtt Leeper, Ohio.

The genus Sebacina is based on the basidia as pointed out by Tulasne. It has fleshy or cartilaginous tissue and hyaline spores and in the Friesian classification is generally called either Corticium, Stereum, or Thelephora. But the basidia correspond with the tremellaceous plants, and instead of being clavate with four sterigmata, they are divided by septations into four compartments, and hence, according to the classification of "experts" of the present day, they are entirely different from ordinary Basidiomycetes, and must be classified in a different division. According to the modern system of classification of fungi, Nature, when she evolved this subject, did not pay any attention to anything excepting the basidia, and however wide the difference may be otherwise, if the basidia are similar, they must be classified together. I am glad to see that Prof. Burt in his recent summary has taken a more sensible view of it and classified Sebacina among the Thelephoraceous plants, where, according to my ideas, it naturally belongs.

As previously stated, I do not know that this plant is a Sebacina, but I judge so from its habits, for Sebacinas are always encrusting plants growing on living hosts, and similar to this species in habits and appearance.

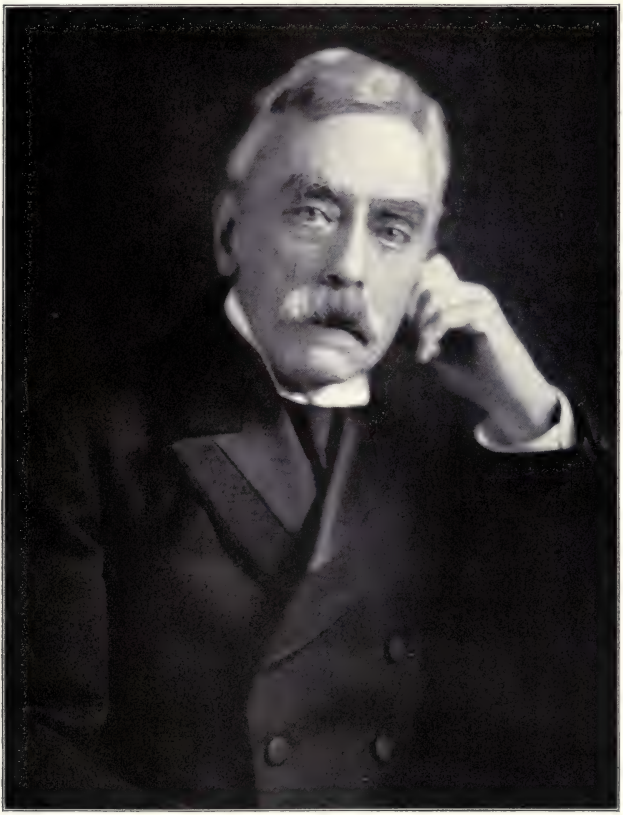
THE GENUS EXOBASIDIUM. We are considerably amused in looking over Prof. Burt's recently published conclusions on the genus Exobasidium. Fourteen "new species" have been discovered in Europe and the United States, all of which Burt finds are the same species, Exobasidium vaccinii, and it takes more space to put them together than it did to pull them apart. Many discoverers of new species are like the "wise" men we read of in our nursery books, who jump into the bramble bush to scratch out all their eyes, and then jump back to scratch them in again.

MYCOLOGICAL NOTES.

BY C. G. LLOYD.

No. 40.

CINCINNATI, O. FEBRUARY, 1916.



W. G. Farlow

Cambridge, Mass.,

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

W. G. FARLOW.

We are presenting herewith an excellent likeness of W. G. Farlow, Professor of Cryptogamic Botany at Harvard University, who is at present the senior and leading figure in American mycology. He has fortunately been favored with a liberal income, and for many years has devotedly accumulated a library on mycology, as well as a working collection of exsiccatae, the largest, perhaps, in the world. We understand that this collection will eventually become the property of Harvard University, and American mycology is to be congratulated in that these treasures will be available to future students at Harvard.

For many years Dr. Farlow has been systematically indexing the record of American mycology by a system of card indexes. Arrangement for publication was made with the Carnegie Institution, under the title Bibliographical Index of American Fungi, and the first part appeared in 1905. Although the Index is slow in coming out, none having been issued since, we understand that it will be continued until completed, when it will be a storehouse of information and citations of the subject. Such a work is a vast undertaking, and at the present rate of progress will require a long time. May we not hope to see it issued more frequently in the future?

Many years ago it was announced that Professor Asa Gray would work up the Phaenogamic botany of America, and Professor Farlow the Cryptogamic botany. It is an open secret that Professor Farlow has a set of illustrations of American agarics, prepared by the exceptionally talented artist, Mr. L. C. C. Krieger, who for a number of years worked under Dr. Farlow's direction and care. This is an undertaking involving, in addition to the labor, a very large expense. If published, it will rival Boudier's illustrations.

NEW PORIAS FROM FRANCE.

By Rev. H. Bourdot.

PORIA MELLITA (Fig. 743).—Cendre, restant mou (comme imprégné de miel); subiculum blanc; pores briqueté-clair sur le frais, prenant une teinte fauvre plus ou moins rougeâtre. Hyphes à parois mince, 2.5-3 mic.; basides 12-15 x 4.5-6 mic.; spores 5-6 x 1.5-2 mic. Ordt a l'intérieur des troncs, cormouiller, cerissier, prunier, etc.

Fig. 743.

PORIA MOLLICULA (Fig. 744).—D'abord blanc ou pâle, rougissant plus ou moins a l'air: très mou mais trame assez coriace: ce qui l'éloigne nettement de Poria terrestris, Poria expallescens Karst. qui sont céracés et à trame serrée. Hyphes distinctes, lâches a parois minces, 2.5-3 mic. Basides 20-30 x 5-7 mic. Spores 4-5 x 4 mic. Sous les mousses.

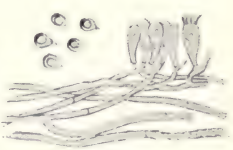


Fig. 744.

BOLETUS RUBINELLUS.

By H. C. Beardslee.

Through the courtesy of the British Museum officials, extended through Mr. Lloyd, I have been able to compare the microscopic structure of Boletus rubinellus with that of its close relative, the English Boletus rubinus.

The American species seems to be rather rare. It occurs every summer at Asheville, where I find it in pine woods in August. It is one of our most interesting species, and is marked especially by its small size (the pileus being 2-4 cm. broad), and the unusual color of the tubes, which are a beautiful carmine in the young plant and fade to ferruginous as the spores develop. A number of our species have the mouths of the tubes more or less red, but the tubes are yellow within. This is not the case in this species in which the tubes are of one color, though this changes as has been indicated. One who has watched it growing would hardly be willing to classify it with Luridi, as classed by Mr. Murrill, along with B. Frostii and B. luridus. Personally, I should prefer to place it in Subtomentosi, to which Smith referred his species. The pileus is slightly viscid at times, but it should scarcely be placed with Viscidi.

The interesting question in regard to this species is its relationship to Boletus rubinus. The English species has all the gross characters of our plant. It has the same small size, same yellow, un-

Note.—We take the liberty of publishing two Porias, received from Rev. H. Bourdot, with his figures and description. We do not know that Rev. Bourdot expects us to publish them, but as the specimens are in our museum, we think it well to legalize the names.

changeable flesh, and same carmine tubes, changing to ferruginous. The resemblance is so close that English authorities to whom my specimens and photographs have been submitted have been strongly of the opinion that the two species are not distinct. The microscopic examination of the type of B. rubinus does not bear out this view. The spores of the type material of B. rubidus are 6 by 4 mic., those of our Asheville specimens 12 to 14 by 4 to 5 mic. This seems too great a difference to be ignored, and it seems safer to consider the two species distinct.

Fig. 745.

The photograph (Fig. 745) shows our plant well. In appearance it is much like a diminutive B. chrysenteron, but the unusual color of the tubes at once distinguishes it.

ADDITIONAL NOTES ON CORDYCEPS.

I am particularly interested in Cordyceps. They are most curious plants, usually developed from the bodies of some insect, larva, or pupa. I trust any one who finds specimens will favor me by simply drying them and sending to my address. The host should always be dried and sent with the Cordyceps attached. If the species is small and several are found, I should like a liberal collection. The tropical species are very imperfectly known.

CORDYCEPS SPHECOCEPHALA. FOUR FINE SPECIMENS FROM A. H. RITCHIE, GOVERNMENT ENTOMOLOGIST, JAMAICA.—Cordyceps sphecocephala is one of the most frequent species of the West Indies on wasps. It was first mentioned by Father Torrubia from Cuba one hundred and sixty years ago, and an evident but inaccurate figure given. It was noticed in several of the very early works on the West Indies. We reproduce Father Torrubia's illustration on the opposite page. While he took a few liberties in representing the Cordyceps as being a plant with leaves, it was a kind of "scientific" license that was current in those old days. The same license is still taken in some of the illustrations issued by more modern delineators. We could cite a number of illustrations issued by recent mycologists that are just about as accurate as this is. In those days they supposed it was a mutation of an animal into a plant. Klotzsch named specimens as above, in Hooker's herbarium, and under this name they were first published by Berkeley. Afterwards

Fig. 746.

TAB.XIV.

Berkeley, in the Fungi of Cuba, spelled the name (carelessly, no doubt) Cordyceps sphecophila, and under this erroneous spelling it is compiled in Saccardo.

It is one of the few foreign species well represented in the museums of Europe, there being eight specimens at Kew and several in the British Museum. There have been two collections distributed from Europe, Saxony and Austria, but I know of no specimen from Britain or the United States, although it probably does occur in our Southern States.

The Cordyceps always springs from the thorax of the host. In each of the specimens from Mr. Ritchie there is a single club from each host, though several specimens in Europe bear two clubs each. Cordyceps australis, as illustrated by Moeller from Brazil, is undoubtedly the same species, and Cordyceps myrmecophila, distributed from Italy by Cesati, appears to be the same, although smaller and growing on ants.

ISARIA BARBERI. FROM A. H. RITCHIE, GOVERNMENT ENTOMOLOGIST, OF JAMAICA. We have received a specimen (Fig. 747), which appears to be the sterile stroma of an undeveloped Cordyceps. It is stated that Giard, in Comp. Rendus. Soc. de Biol. Paris, 1894, p. 823, gives an account, under the name Isaria Barberi, of a parasite on the caterpillar of Diatraea saccharalis, the "moth-borer" of the West Indies. The borer attacks the sugar cane and does much damage. Massee received from John R. Bovell some material that he said was a Cordyceps and called it Cordyceps Barberi, on the theory that it was the Cordyceps form of Isaria Barberi. The material now at Kew from Mr. Bovell is only sterile strands such as Mr. Ritchie sends. Massee published a figure under the name Cordyceps Barberi, which has no possible resemblance to the material now at Kew, but represents a (probably imaginary) Cordyceps. Where he got the idea I do not know, certainly not from the material now preserved at Kew from Mr. Bovell. There is no evidence that these sterile strands called Isaria Barberi, Giard, develop into a Cordyceps, nor that there occurs a Cordyceps on this borer. Of course, that is on the grounds that the published figure of the "Cordyceps" is not evidence. Nor have these strands any Isaria spores, but the name Isaria Barberi that has been applied to them will be convenient to designate them until more is learned about them.

Fig. 747.

RARE SPECIES OF FUNGI RECEIVED FROM CORRESPONDENTS.

TREMELLODENDRON CUNEATUM, FROM N. L. T. NELSON, FLORIDA (Fig. 748).—Pileus erect, tapering to the base (2-3 cm. high), cut into a few cruciate segments. Surface pale, smooth. Hymenium unilateral, pale yellow (Honey yellow of Ridgway),

smooth. Basidia (teste Bourdot), globose, cruciate. Spores globose, 3½-4 mic., hyaline, smooth.

The plant grows caespitose in the earth from a common, mycelial base. It was named (Note 226, Letter 54) as Stereum cuneatum,

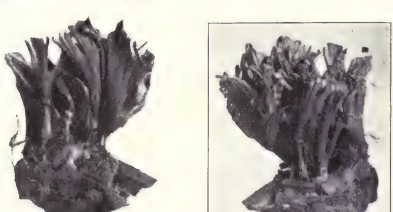


Fig. 748

but on receipt of better specimens from Mr. Nelson, I suspected it of being a Tremellodendron, and sent specimens to Rev. Bourdot, France, who found the basidia, characteristic of this genus. It is the only yellow Tremellodendron known to me. Atkinson describes one from North Carolina (T. aurantium), which, however, from the description, is different in form and spores.

ISARIA FLABELLIFORMIS (Fig. 749).—This is another mysterious plant that we find often in the early season, growing on frondose wood. It was named by Schweinitz first as Merisma nigripes,

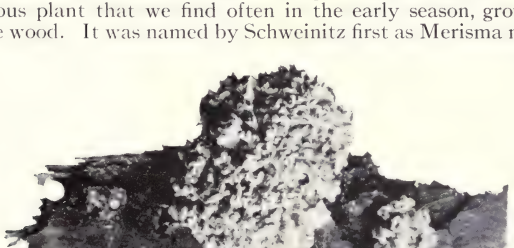


Fig. 749

and afterwards, when he claimed to have found perithecia, he illustrated with crude cut and named it Sphaeria flabelliformis. If it ever has perithecia it would be called Xylaria flabelliformis now, and is so compiled in Saccardo. While it is a common plant with us, we think no one but Schweinitz ever claimed to have found any but conidial spores. I have often observed it, and I never saw it develop

any perithecia. Fries, who was no doubt only guessing from Schweinitz' figure, started the story that it is the conidial state of Xylaria corniformis, and while there is not the slightest possibility of that being true, it was accepted and published by Ellis in his N. A. Pyrenomycetes as "an abortive form" of Xylaria corniformis. The plant is not rare with us, and I have it also from Africa, but I do not know it in Europe. There have been two other bulls made in connection with it, both Peck and Montagne having discovered that it was a "new species" of Thelephora (sic). Peck called it Thelephora rosella, and Montagne (from South America), Thelephora liliputiana.

That Isaria flabelliformis is the conidial state of a Xylaria is possible, even probable, but the ascigerous form is not known, at least as to specimens, and those who find it growing should mark the place and leave it, and if it develops a later stage, I should be very glad to receive specimens.

SPORES OF CALVATIA VERSISPORA (Fig. 750).—"With regard to Calvatia versispora, the spores are very irregular, and some of them are more or less fusiform, as I have drawn, but I

Fig. 750

should not call such "apiculate." None of the spores seem to have a definite, regular, apiculus such as one gets in many Lycoperdons, but some of them appear to have a blunt stalk, as I have indicated. Are not the spores immature? They appear so to me, and distorted by mutual pressure. The very large, irregular, yellowish cells, of which I have drawn three (two apparently attached), are not spores, but seem to be detached, sterile cells."—Letter from Miss E. M. Wakefield.

Calvatia versispora is a Japanese species. Compare Letter No. 56, Note 247, Figure 707. The plant was published as Calvatia versipora. I presume Calvatia versispora would better indicate the idea (though both are pidgin Latin), and if those nomenclatural purists who so strenuously insist on the perpetuation of all original blunders will kindly overlook it, I would wish to correct it.

STEREUM CAPERATUM, FROM MISS A. V. DUTHIE, SOUTH AFRICA (Fig. 751).—Effuso-reflexed, largely resupinate, but with well developed, pileate portion. Surface tawny with puffed margin, matted, tomentose. Hymenium white. Metuloids (typical)

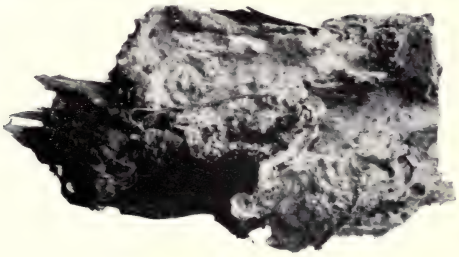


Fig. 751

sharp, hyaline, rough, abundant, projecting 30 mic., but borne at various levels, and many of them entirely imbedded. Spores elliptical, 5 x 8, hyaline, smooth.

Closely related to Stereum bicolor, it is a Lloydella for those who recognize this genus. These are the only two species with white hymenium known to me.

Fig. 752

PTYCHOGASTER ALVEOLATUS (Fig. 752), FROM FRANK H. AMES, NEW YORK.—Supposed to be the conidial deformation of Polyporus rufescens, named as above by Boudier. The specimens are globose, not elongated, as shown in Boudier's figure, but in malformations, shape does not count for much. An account of the "genus" Ptychogaster was given in Mycological Notes (Pol. Issue), page 31. Ptychogaster appears in Saccardo as Ceriomyces, which is a juggle that would have done credit to our New York friends.

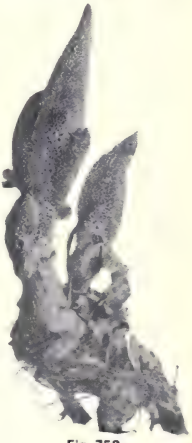


Fig. 753.

POLYPORUS DISTORTUS (Fig. 753), FROM FRANK H. AMES, NEW YORK, or the abortive form of Polyporus rufescens of Persoon. This specimen, however, is of a very peculiar, narrow, pointed shape, exactly the same as to shape as Boudier illustrated under the name Ptychogaster alveolatus, which is, as he states, a Ptychogaster form of Polyporus rufescens.

DAEDALEA UNGULATA (Fig. 753), FROM JOHN E. A. LEWIS, JAPAN.—Pileus sessile, ungulate, 2-3 inches thick. Surface pale, minutely and densely pubescent. Context antique brown, varying to raw sienna. Pores sinuate, daedaloid, with thick walls. Hymenial surface pale, alutaceous, contrasting with the context color. Hymenium pubescent with projecting, subhyaline hyphae. Spores not found.

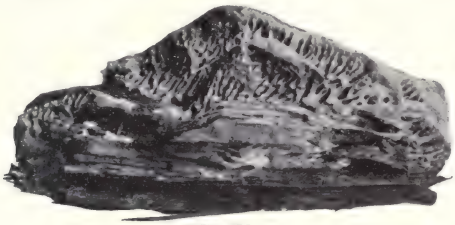


Fig. 753.
Daedalea ungulata.

Though smaller, this has same shape and hymenial configuration as Daedalea quercina, but the coloration is like Lenzites saepiaria. I am satisfied it is only an ungulate, daedaloid form of Lenzites saepiaria, but no such form is known elsewhere than in Japan. Of this the color and shape are similar to Daedalea Guyoniana from Algeria, known from one old specimen at Paris (as Trametes). At first I so referred this collection, but I have since noted that Daedalea Guyoniana has colored spores and belongs to Prof. McGinty's "new genus" Phaeodaedalea, hence can not be the plant from Japan.

FOMES CLELANDII (Fig. 754), FROM DR. J. B. CLELAND, AUSTRALIA.—Pileus sessile, small, 1-2 cm. in diameter. Surface black, rugulose, dull. Context isabelline. Pores minute with white mouths. Cystidia none. Spores elliptical, 6-7 x 7-8½, subhyaline, opaque, smooth. When this was received it was referred with doubt (cfr. Note 297, Letter 59) to Fomes scutellatus, an American species, with which it exactly accords to the eye. We have since found that the spores of Fomes scutellatus are entirely different, hence must rename the Australian plant. It goes in Section 57 of our Fomes Synopsis.

Fig. 754.

POLYSTICTUS SUBAFFINIS (Fig. 755), FROM J. UMEMURA, JAPAN.—Pileus thin, spathulate, tapering to a reduced base, rarely with a short, lateral stipe. Surface glabrous, pale brown. Pores minute, ochraceus.

We have three collections of this plant from Mr. Umemura, Nos. 66, 87 and 112. Formerly we referred it to Polystictus polydactylis on the strength of our photograph of plant from South America

in Montagne's herbarium. On comparing it again, we question it much, and particularly as the whole section Microporus is so rare in American tropics. Polystictus subaffinis differs from Polystictus

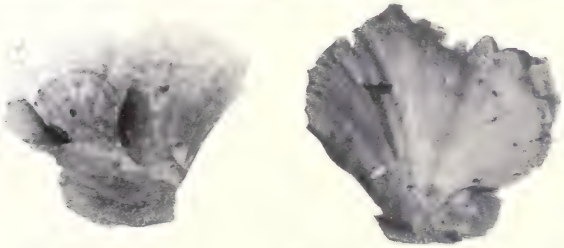


Fig. 755.

affinis in its much paler color and absence of stipe. It is close to vernicipes, but much thinner, and from subvernicipes differs in much paler color. We have specimens from Java with short stipe, and a collection from Madagascar that is intermediate between the Java plant and Polyporus vernicipes.

TRAMETES INCONDITA (Fig. 756), FROM P. VAN DE BIJL, SOUTH AFRICA.—There is more rejoicing in heaven over the one lost sheep that returned to the fold than over the ninety and

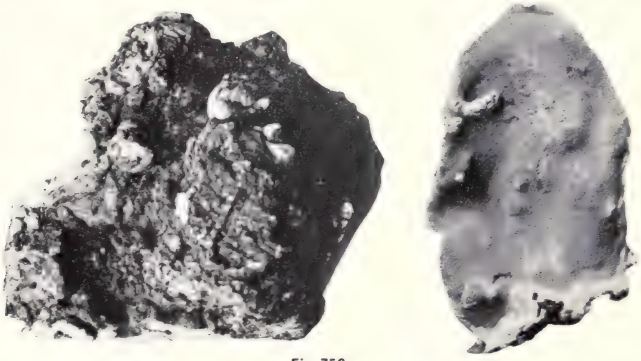


Fig. 756.
Trametes incondita.

nine that went not astray. There is more pleasure in getting a definite meaning for an old, indefinite name than in proposing a dozen so-called new species. Trametes incondita was named by Fries in 1838, from South African specimens, collected by Afzelius. No specimen is preserved either in Fries' herbarium at Upsala or any other museum of Europe, nor has this plant since been received in any museum.

Fries gave a crude figure of it in Reliquiae Afzelianae, and from this figure and from Fries' description, there is no doubt in my mind that we have here for the first time in eighty years the exact plant that Fries had. It is most peculiar. There are pure white, mycelial plaques permeating the host (wood) and the context of the irregular pilei is of the same nature. It is analogous, I think, to the mycelial core that is found in Polyporus graveolens and Polyporus corruscans. The minute pores are built almost directly on this white layer with but little true context. The color is dark yellowish (warm buff of Ridgway), and contrasts with the white sublayer. The pores are margined with this white, overlapping layer. The pilei are very irregular, due to its peculiar formation, "indefinite," as Fries expresses it. The name incondita "unformed" is not inapt. The hyphae tissue is composed of thickened, irregular cells. The spores are irregular, elliptical or globose, 5-7 to 7-8 mic. hyaline, smooth. Trametes incondita is a most interesting plant. Mr. van der Bijl sends two collections, No. 74, irregular, pileate, No. 71, resupinate.

HYDNUM ADPRESSUM (Fig. 757), FROM R. P. BURKE, ALABAMA.—As I shall call it. It seems to be a Southern plant

Fig. 757.
Hydnum adpressum.

in this country, and has passed as Hydnum imbricatum. It has thick, obtuse, adpressed, permanent scales. The type form of Hydnum imbricatum (Fig. 758) so abundant in the pine woods of Sweden and Europe in general, has soft, erect, detersive scales. While Hydnum imbricatum is common of record in our fungus lists, I have never seen but one specimen, viz., from James L. Weir, Idaho. The determinations are based on Hydnum subsquamosum or Hydnum adpressum.

Fig. 758.
Hydnum imbricatum.

Fries states, regarding Hydnum imbricatum: "There are two forms, one with a plane pileus, and thick, permanent scales, the other subinfundibuliform with free, receding scales." While I do not know Hydnum adpressum in Europe, I infer that it is the plant referred to by Fries as the first form. As to Hydnum imbricatum, all the many European figures I have looked up, and all the specimens I ever saw from Europe are the type form, which in Europe is abundant. If Hydnum adpressum occurs there, it must be rare.

FAVOLUS DERMOPORUS (Fig. 759) FROM REV. C. TORREND, BRAZIL.—Pileus white, smooth, faintly tessellate. Stipe short, lateral, pubescent. Pores large, favoloid, *deep*. Cyst. none. Spores 4 x 8, hyaline, transparent, with two or three guttae.

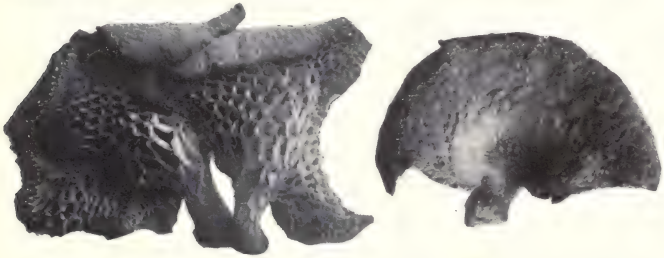


Fig. 759.
Favolus dermoporus.

Favolus dermoporus was among the first foreign polyporoids named by Persoon (as Polyporus). It has been omitted by Saccardo. The type is at Paris in rather poor condition. It is quite similar to the more common Favolus brasiliensis, but distinguished by its very much larger, deeper pores, some of them ½ cm. deep.

POLYSTICTUS PELLUCIDUS (Fig. 760), FROM J. UMEMURA, JAPAN.—Pileus thin, cartilaginous, drying rigid and contracted. Surface pubescent, zoned. Context white. Pores large, angular, shallow, with prolonged walls. Hymenium pubescent with

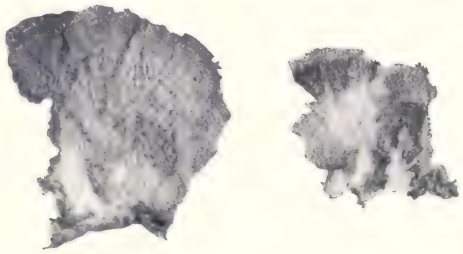


Fig. 760.
Polystictus pellucidus.

hyaline, smooth cystidia (?) usually simple, sometimes branched, and rarely crested.

This species was heretofore known to me only from the type at Leiden (cfr. Letter 37). The large pores are pale, with a tinge of purple or rose when young. I think it is badly named, for it is not

pellucid. The type specimen is largely resupinate, but has a free, pileate development and is surely not a Poria, as compiled in Saccardo. Neither can it be classed as Irpex, as has been proposed.

MERULIUS CASTANEUS (Fig. 761), FROM J. UMEMURA, JAPAN.—Resupinate, closely adnate, no distinct margin, uniform, dark chestnut brown. Hymenium meruloid with large, shallow pores (Fig. 762 enlarged). Tissue of deeply colored, rigid hyphae.

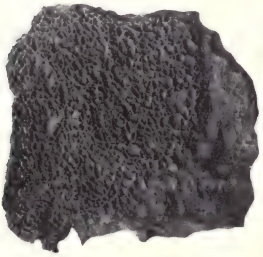


Fig. 761.
Merulius castaneus.

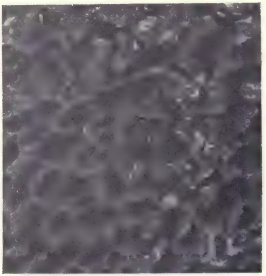


Fig. 762.
Pores enlarged six diameters.

Hymenium layer about 150 mm. thick, subhyaline, consisting of intricate, rigid, subhyaline hyphae, with free projecting ends. Spores (conidial ?) globose, 3-5 mic. smooth, hyaline. Basidia not found.

The dried specimen might be classed as a shallow pored Poria, but when soaked out it is decidedly meruloid. It may have a name somewhere as a Poria, but if it has I do not know it. Received from J. Umemura, Japan, No. 120 (twice) and No. 134.

STEREUM ALBIDUM (Fig. 763), FROM A. YASUDA, JAPAN.—Pileus white, thin, spathulate or reniform, with a short, lateral stipe, 3-4 x 1-2 cm. Surface smooth, with minute pubescence under a microscope. Cystidia none, but a few slender, projecting, hyaline hyphae. Spores globose, 3 mic., hyaline, smooth.

Fig. 763.

This belongs to Section 9 and is the only species in the section that remains white in drying. It is quite close to Stereum diaphanum (in Section 2), which however, is always infundibuliform. The spores described may be only the conidial spores, for I find also large (10 mic.) globose, minutely rough spores, which may be the basidial spores, but I take them to be accidental.

DRIED PHALLOIDS.

We present the photograph (Fig. 764) of a dried phalloid simply to show how it is practical to dry phalloids successfully. It is only necessary to place them in a current of air so they will dry rapidly, and they will preserve their shape and color. The specimen that we photographed was dried by being laid on the window sill with the window raised about one inch, so as to bring a current of air directly over it, and it dried so rapidly that it lost neither its form nor color.

Fig. 764

There are many phalloids in tropical countries that are very imperfectly known, and if those who note them will pick up and dry them in the manner described, and send to me, much will be added to our knowledge of the phalloid situation. The only perfect record of a phalloid is a good photograph, but next to a good photograph, a phalloid dried so as to retain its shape is almost as characteristic.

After the phalloids are dried, wrap them loosely in tissue paper, put them in a pasteboard box intact, and mail them to my address. They will reach me in good condition if they are not crushed in the mail. It is better not to put other specimens with them, and to protect them well from being broken in transit.

TREMELLA FUCIFORMIS (Fig. 765), FROM R. P. BURKE, ALABAMA.—This is a tropical species, and judging from the scanty collections of tropical Tremellas in the museums of Europe, it is the most frequent species in the tropics. Moeller gave a good illustration of it, from Brazil. I have it from India. Barring Atkinson's erroneous reference (based on Tremella vesicaria, with no resemblance to it), there is no record of the species in the United States. In the British Museum there is a specimen from Ravenel, which Berkeley (or someone) misreferred to Tremella lutescens. This specimen from Dr. Burke is the first one I have from our southern States, and the second I think that has been collected.

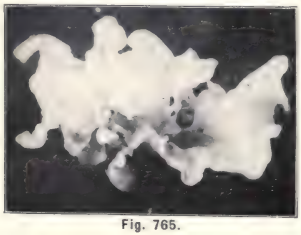


Fig. 765.

MYCOLOGICAL NOTES.

BY C. G. LLOYD.

No. 41.

CINCINNATI, O. MARCH, 1916.

H. C. BEARDSLEE.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

H. C. BEARDSLEE.

The photograph on the preceding page is an excellent likeness of Professor H. C. Beardslee as he appears to-day. Professor Beardslee is connected with a large educational institute of Asheville, North Carolina, which would, of itself, be enough to occupy the time of an ordinary individual. He is also engaged in a close and critical study of the fungi, particularly the Agarics of his section. In addition, he is a "whister," and a regular attendant at the National Whist Congress, where, I am told, he is known as "Doc." Beardslee.

Some years ago, Professor Beardslee and I spent a season together, studying the fungi in Sweden. Since that time our relations have been very intimate, and I am often favored with visits from him when he is passing through Cincinnati.

Professor Beardslee, in my opinion, is one of the very few men to-day who has a critical knowledge of the Agarics. Located in a most favorable environment, where they occur in abundance, he has given the subject years of study, but has done little publishing—not as much as he should. He is in practically the same region where Schweinitz, who blazed the trail in America, published the first list. In Schweinitz's days conditions were rather crude. From the specimens he left, we know that he made many errors in the determination of Polypori. No doubt he also introduced a number of erroneous records of Agarics; but there is no way of determining this fact, as he left no specimens of Agarics, or practically none. Professor Beardslee, being located in the same region, is in a position, by noting the species he finds and comparing them with the record of Schweinitz, to verify or correct every one of them. This would make a most valuable commentary, and add much to our knowledge of the subject. We still hope that something like this will be accomplished by him, for Professor Beardslee has given too much close study to the subject to content himself with the few contributions he has made in print.

The Genus Hydnochaete.

This, for me, is an artificial genus, and could be classed either as a tubercular Hymenochaete or a Grandinia with setae, or a "genus," if you wish. I think the simplest way to classify it would be to consider it a section of Hymenochaete. Since Cooke exploited the genus Hymenochaete based on these same colored hairs (setae), it is quite the fashion, every time some one discovers these hairs on a specimen, to make a "new genus" for it. It could be done for Agarics, but no one ever did it. However, as long as Murrill is working on the Agaric subject, there is still hope. Ellis discovered these setae on Polypores, and proposed a new genus, Mucronoporus; and I know, from conversation with him, that he was much chagrined that no one followed him. He said, and said truly, if it is a good generic character in Thelephoraceae, it is just as good in Polyporaceae. The Thelephoraceae men are quite content, apparently, to break up the old genus Stereum on the basis of these hairs, and call the split Hymenochaete. It is not very logical, as originally, the genus Stereum itself was based on these hairs, and it is contrary to the "sacred laws of priority"; but the aforesaid "sacred laws" do not have much force when they come in conflict with somebody's pet theory.

When proposed, the genus Hydnochaete was restricted to resupinate species, the original specimen being resupinate; but it is not logical to so restrict it when the same author includes in the closely-related Hymenochaete both resupinate and pileate species. In this sense, I believe there are only four species known.

HYDNOCHAETE SETOSA (Fig. 766).—Pileus dark, ferruginous, with coarse, strigose, matted hairs. Hymenium dark, with dense, permanent warts. Setae abundant, dense, covering the warts, projecting 20-30 mic.

This seems a frequent species in the American tropics, and at Kew are specimens from Cuba, Mexico, and Venezuela. It was originally collected in Jamaica by Swartz, and his specimens are at the British Museum and in Persoon's herbarium at Leiden. Persoon named it in mss. "Thelephora paradoxa," but never published it.

Léveillé also saw a specimen from Mexico in the museum at Paris, and labeled it "Leptochaete igniaria." It did not get into print, but the specimen still bears this label. Swartz published it originally as Hydnum resupinatum, but, as it was not resupinate, he afterward took the liberty of changing it—without consulting Otto Kuntze—to Thelephora setosa. Berkeley found the specimen in the British Museum, and republished it in 1842 and gave a good figure of it. Thirty years later he got a specimen from Venezuela, and, having forgotten his previous publication, discovered it was a "new species," and published it as Hymenochaete aspera. It is compiled in Saccardo under both names and in different genera.

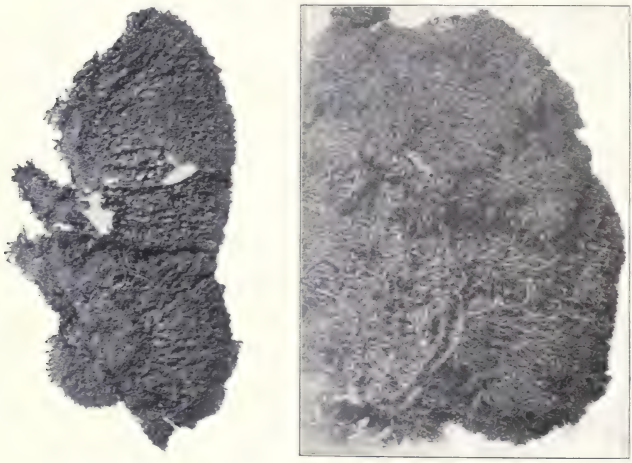


Fig. 766.
Hydnochaete setosa.

As this Hydnochaete differs from all other known pileate Hymenochaete not only in its tubercular hymenium, but also in the strigose, matted hairs, Professor McGinty proposed to restore Léveillé's name and call the plant "Leptochaete setosa (Berkeley) McGinty." Those who recognize the genus "Funales" cannot consistently refuse to recognize the genus Leptochaete, for both are based on the same characters.

HYDNOCHAETE BADIA (Fig. 767).—Resupinate, broadly effused, no distinct margin. Subiculum 2-3 mm. thick, coriaceous, Sudan brown. Hymenium darker than context, varying in configuration, tubercular, irpicoid, or sometimes with indications of

pores (cfr. Note 176, Letter 53). Setae dense, rather short and thick, sometimes blunt, projecting 30-35 mic. Spores (B) elliptical, pale, 3 x 5 mic.

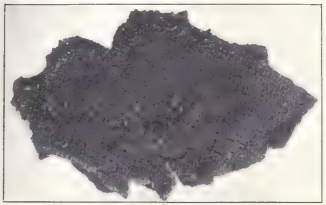


Fig. 767.

This is a frequent plant in Brazil, and well represented in the museum. We have specimens from Rev. C. Torrend.

HYDNOCHAETE FERRUGINEA. — Resupinate, thin, with byssine margin, ferruginous. Setae abundant. Spores globose, Teeth small, ½ mm. subulate. 3-4 mic. verrucose, ferruginous.

It was described from Brazil by Father Rick. Unknown to me. As it has colored spores, Professor McGinty proposes for it a "new genus," Phaeohydnochaete. Those who recognize the other "Phaeo" genera cannot consistently refuse to adopt it.

HYDNOCHAETE JAPONICA (Fig. 768).—Resupinate, with no distinct margin, hard, rigid. Context thick, dark mummy brown.

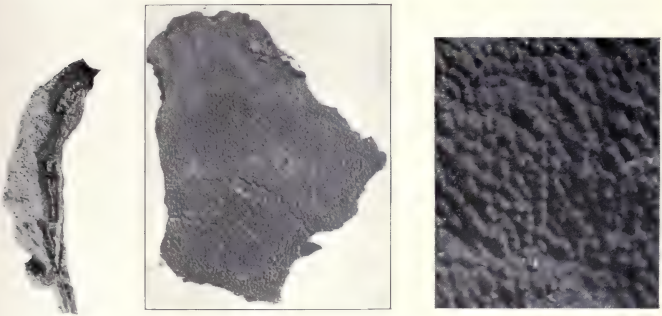


Fig. 768.

Hydnochaete Japonica. Showing section, surface, also spines, the latter enlarged 6 diameters.

Imbedded in the context are rigid, thick, deeply colored setae, similar to those found in Fomes pachyphloeus (cfr. Fig. 600, Fomes Synopsis). Surface tubercular, with small, dense, rigid tubercules, paler (brown) than the context. Tubercules densely covered with setae, projecting 40 to 50 mic. Spores not found, no doubt white.

RARE SPECIES OF FUNGI RECEIVED FROM CORRESPONDENTS.

RADULUM BALLOUII (Fig. 769).—When Mr. Ballou found this plant some years ago, growing on the living limbs of the white cedar (Cupressus thyoides) in "New Yersey," as Saccardo compiles it, he

found a novelty that was not appreciated at the time. He turned it over to Banker, and he discovered it to be a new species of "Stec-cherinum" (sic), which was one of Banker's juggles for the dimidiate section of Hydnum. Banker has probably since rejuggled it, for he changes his names every time he writes a paper, and his juggles and rejuggles are not worth bothering over. What most amused me,

Fig. 769.
Radulum Ballouii.

however, is that the plant never was a Hydnum, but a Radulum in the Friesian classification, a genus the existence of which was apparently unknown to Banker at the time he discovered this "new species."* Saccardo compiled it as Hydnum Ballouii, but, of course, Saccardo cannot be expected to correctly translate Banker's linguistic inventions when Banker himself did not know the genus to which his plant belonged.

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* "Banker abolished the genus Radulum. Bulletin Torrey Botanical Club, Vol. 29, 1902." Extract from a letter from Ballou.

Yes, we have heard of these fellows before, who abolished established language, with a breath, like one flecks off a speck of dust. Otto Kuntze and Professor McGinty are two others of the same kind.

The genus Radulum was established a hundred years before Banker was born, has been in use continuously ever since proposed, and will be in existence a hundred years after the name-jugglers have been forgotten. Banker will find it about as easy to "abolish" the genus Radulum as he would to "abolish" the city of New York.

Radulum Ballouii is a novelty from several points of view. It is a Radulum in the Friesian definition, accepted by everybody but Mr. Banker, with teeth not awl-shaped, as in Hydnum, but obtuse, tubercular. Fries knew only resupinate species, but an American, pileate species, Radulum pallidum, has since been named; and Radulum Ballouii is the second pileate species of Radulum known. Then Radulum Ballouii has hard and woody texture, and I believe in time will prove perennial. But one other ligneous Hydnaceous plant is known, viz., Hydnofomes tinctorius, and the best classification probably would be to put these two species together in one genus. Then again Radulum Ballouii impresses me as most peculiar in its habits. It grows on the living branches near the top of the tree, and, as far as I can note from the specimen I have, it does not attack the wood. I would not state that it is an epiphyte, but it looks that way.

Mr. Ballou found the plant abundant, and at first supposed it to be a destructive parasite. In a recent letter to me he is inclined to doubt the latter. When growing, the teeth are "golden yellow," but no indication of the color remains on the dried specimens. When old, the plants loosen and fall away from the limbs. It is curious that no one found this unique fungus before, but its habitat, near the tops of the trees, and the difficulty of access to the white cedar swamps no doubt account for it.

POLYSTICTUS BLUMEI (Fig. 770), FROM J. UMEMURA, JAPAN.—Pileus sessile, dimidiate, rigid, thin, pale, white when fresh.

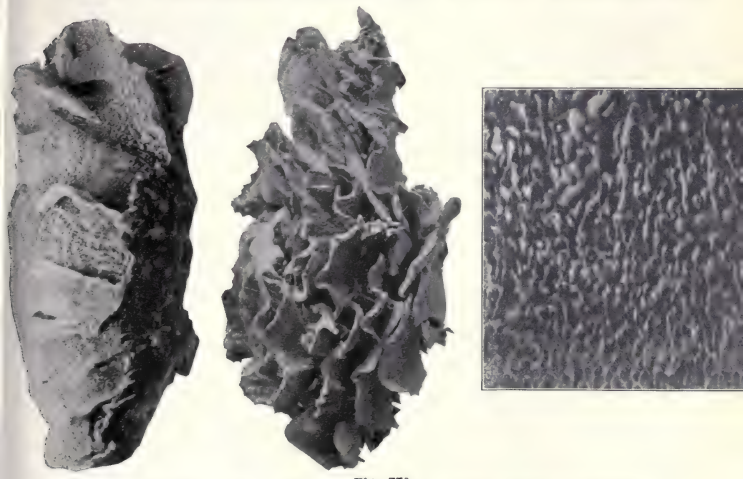

Fig. 770.

Polystictus Blumei. Showing pores, habits, and pores enlarged six diameters.

Surface with appressed fibrils, faintly zonate with raised zones. Context white. Pores large, rigid, lacerate, irregular. Hymenium with numerous hyaline, projecting, smooth, thin-walled hyphae.

This, originally from Java, is not rare in the East. The large-pored, rigid hymenium reminds one of that Polystictus fimbriatus of American tropics, but the latter plant is merismatoid, entirely different in method of growth. Polystictus Blumei would never be recognized from the published description, but I am satisfied from my notes and photographs of type at Leiden it is the same as this.

POLYPORUS MESOTALPAE (Fig. 771), FROM PROFESSOR T. PETCH, CEYLON.—Pileus a foot or more in diameter, with a thick, mesopodial stem. Surface dull, cinereous brown, minutely velutinate, soft to the touch. Context pale cinereous, soft, spongy. Pores minute, round, cinereous, darker than the flesh. Cystidia none. Spores globose, hyaline, opaque, smooth, 5-8 mic.

Professor Petch finds this several times in Ceylon, and gives an interesting account of it. It was never collected by Thwaites. "It is

Fig. 771.

Polyporus mesotalpae. (Photograph much reduced in size.)

always stalked or occurs on much-decayed stumps. At first, for a few days, it is white, then takes pale brown, and finally chocolate brown. The stalk is practically black and the hymenium pallid. It is white only at first, and the color change to brown is assumed but slowly."

A piece of the pileus, on comparison, seems the same as Polyporus Talpae of American tropics (cfr. Myc. Notes, Polyporoid Issue, page 36), and when I first received it, I referred it to that species. The specimen just received, however (Fig. 771 much reduced), shows it is mesopodial, and it must be classed in section Ovinus. Polyporus Talpae (cfr. figure 360 loc. cited) is merismatoid, and goes in the Merismus section. Notwithstanding this material difference, I have a suspicion that they are about the same species. The pores of Polyporus mesotalpae are certainly smooth. I have recorded the spores of Polyporus Talpae "minutely rough." This record was made from the original specimen at Kew. I have two collections from tropical America, but find no spores in either. Excepting this slight spore difference, which is not sure, and its different stipe insertion, I can find no difference between the two species.

MYCOCITRUS AURANTIUM (Fig. 772), FROM P. PIO BUCK, BRAZIL.—There is great merit in Alfred Moeller's work on Brazilian fungi in several respects. It is systematic, it is well illustrated, it is accurate, and it is practical to determine plants from it. That can be said of very few works that have been written on mycology. When Moeller's work appeared, it made known a new field of Hypocreaceae. They are mostly large plants, several inches in diameter, evidently very conspicuous when they grow, and which seem never to have been collected before. Several new genera are proposed—and good ones, too, apparently—Mycocitrus, Mycomalus, Ascopolyporus, that grew encircling living branches. Apparently they are epiphytes, which upsets the whole idea of the mode of life

Fig. 772.
Mycocitrus aurantium (natural size.)

of fungi, for we are taught to believe that fungi, having no chlorophyl and not being able to decompose carbon dioxide, must derive nutrition from organic carbon compounds. De Bary divides fungi into Saprophytes and Parasites, but these genera, growing loosely attached on living branches which they apparently do not attack, surely do not get their nutrition from their "hosts." There are other fungi, Polyporus fruticum of the tropics and Radulum Ballouii of our own flora, which seem to me to grow in about the same way.

Fig. 773.
Polyporus papillatus.

Mycocitrus aurantium was well illustrated and described by Moeller, and it is not necessary to repeat its characters. The dried specimen is much paler (about light, ochraceous salmon of Ridgway) than Moeller's figure made from the fresh plant, and the specimens are larger, one of them measuring four inches in diameter. The spores and perithecia are very similar to those of Hypocrea, in fact Mycocitrus might be classed as a large Hypocrea. The spores have a septum (two-celled), but it is often indistinct. They are hyaline, smooth, 4 x 6 mic.

POLYPORUS (AMAURODERMUS) PAPILLATUS (Fig. 773), FROM REV. C. TORREND, BRAZIL.—Pleuropodial. Pileus 6 x 10 cm., 6 mm. thick, with dull (not laccate), rugulose, radiate surface, brown, with tubercular, uneven, dull surface. Context and pore tissue concolorous, hard, dark cinnamon brown. Pores minute, with papillate, brown mouths. Spores globose, or slightly piriform, 10 mic., pale-colored, smooth.

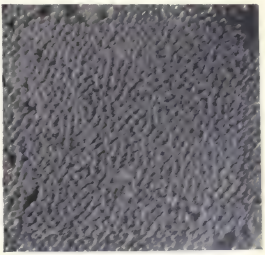

Fig. 774.

The pores seem to be developed in areas, and the papillate mouths (Fig. 774 enlarged) are quite curious. In fact, a similar appearance led Berkeley to classify Polyporus Sprucei as Porothelium (sic). (Cfr. Stipitate Polyporoids, p. 110, fig. 404.)

This belongs to section 7 of the Stipitate Polyporoids, and we believe it is only a form of Polyporus Chaperi, differing in its rugulose, striate (not zoned) pileus, its papillate pore mouths, and its stem, solid, not having sterile branches. When I first investigated the subject, there was but one specimen of Polyporus Chaperi known, which was at Paris. It came from Cuba. (Cfr. Stipitate Polyporoids, Fig. 406.) Then I got a specimen from Gustavo Peckolt, Brazil, agreeing exactly with the type in everything. Then I saw in Ellis' herbarium a specimen from Smith, Nicaragua, which had a lateral stipe, but every other feature exactly the same as Polyporus Chaperi and surely same species. It was named Polyporus avellaneus by Murrill. Then I so referred a specimen (sent without stipe No. 44) from Rev. C. Torrend, Brazil. There is evidence of its having had a lateral stipe. Then I got this specimen, which, while it differs from the four previous specimens in several important characters, I still believe it is only a form of Chaperi.

CORDYCEPS OF JAPAN.—In Matsumura's list there is a record of but one species of Cordyceps from Japan. There are four species known, and no doubt a great many that are not known. I trust my Japanese correspondents will pick up and dry every specimen of a Cordyceps they note and forward to me. A few words in regard to the collection of Cordyceps will not be amiss. Cordyceps have only to be picked up and dried; but, as the host is usually buried, care should be taken to dig out the host and forward it, attached to the Cordyceps. They change very little in drying, so it is not necessary to send them in alcohol. Simply lay them aside for a few days and dry them, wrap in tissue paper, and place in a little box and mail to my address. If you are an entomologist and know the name of the host, it would add much to the interest if the name of the host is stated on a piece of paper and enclosed with the specimen.

The four species of Cordyceps known from Japan are as follows:

CORDYCEPS GUNNII (see Synopsis of the Cordyceps of Australasia, page 6, fig. 618).—This is known from a single collection at Museum of Paris. It is a large Australian species, and has never been collected outside of Australia, excepting this one Japanese collection.

CORDYCEPS SOBOLIFERA (see Myc. Notes, page 529, fig. 721).—This is a species of the West Indies, said to be common there, but not known from any collection in the museums now. It grows on the Cicada. A specimen was sent me from Japan by Dr. Kawamura, the only specimen I have seen. Dr. Kawamura reports it as common in Japan, but none of my other correspondents have met with it.

CORDYCEPS NUTANS (see Myc. Notes, page 529, fig. 720).—This is apparently the most frequent Cordyceps in Japan. It grows on a Hemiptera, and (excepting the next) is the only species recorded on this bug. I have specimens from J. Umemura and also A. Yasuda, from Japan.

CORDYCEPS TRICENTRUS (Fig. 775), FROM PROFESSOR A. YASUDA, JAPAN.—Stipe slender, 1 mm. by 6 cm. Head nodding, smooth, 1½ mm. by 7 mm. Entire plant yellow. Perithecia not prominent. This species grows on Tricentrus, and is very similar to Cordyceps nutans. It differs in its host, Tricentrus—a name we have not located in any entomological work in our library—and in its color, pale yellow in all its parts. Cordyceps nutans has a black stem below and deep orange above, as in the club. We present a figure (Fig. 775) made from a drawing sent us by Professor Yasuda. Also a photograph (Fig. 776), enlarged six diameters, of the Cordyceps club. From the figures, the species cannot be told from Cordyceps nutans, and it grows on a similar host. The only difference is the color, as noted above, and which is quite marked, according to Professor Yasuda, and he is familiar with both species. It is probably better, however, to consider it as a form of Cordyceps nutans.

Fig. 775.

Fig. 776.

ISARIA ATYPICOLA (see Letter 56, Note 257).—This occurs on a large, burrowing spider, and much resembles to the eye a Cordyceps. Its fruit, however, is only conidial, hence it is an Isaria. Most Isarias are supposed to be preliminary stages of Cordyceps, and this probably is; but the Cordyceps form has never been found. We trust those living in Japan will watch closely for a Cordyceps, on their burrowing spider.

POLYPORUS POCULA (Fig. 777). PHOTOGRAPH BY BURTT LEEPER, OHIO.—We have considered this plant twice (Myc. Notes, Pol. Issue, page 44, and Syn. Stip. Polyp., page 140).

Fig. 777.
Polyporus Pocula. Photograph by Burtt Leeper.

The illustrations we have used were made from small specimens, but about the usual size. We present (Fig. 777) a fine photograph sent us by Burtt Leeper of an unusually large specimen. It is very rarely, we believe, that the plant reaches this size. The photograph, like all that Mr. Leeper makes, is exceptionally fine.

HYDNANGIUM RAVENELII (Fig. 778), FROM DR. R. P. BURKE, ALABAMA.—Hypogeal fungi, as the name indicates, grow beneath the surface of the ground. There are two general classes, Tuberaceae, with spores in asci, and Hymenogasters, with spores borne on basidia. The Hymenogasters are closely allied to "puff balls," but the cells remain permanently in the ripe specimen, and do not deliquesce into a powdery mass as do puff balls.

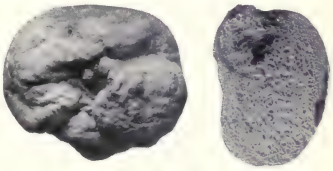

Fig. 778.

As most Hymenogasters are hypogeal, and only found by laborious search, they are scarcely known in this country. Harkness is the only one who has hunted much for them. In Europe they are better known, for two of the best students, Vittadini and Tulasne, searched diligently for them, and wrote most magnificent works concerning

them. There are a few Hymenogasters that are not hypogeal. The most frequent, epigeal species we have is Rhizopogon, and in the South, Hydnangium Ravenelii.

Nothing has been written as to the habits of Hydnangium Ravenelii, but we judge from the specimens that it grows on the surface of the ground. There is a statement that when fresh it exudes a milky fluid when cut. If true, it is one of the few Hymenogasters so characterized. The surface of the dried plant is smooth with a pinkish color. The gleba formed of cells, empty to the eye, has a pale pinkish cast. Collection notes as to habits, color when fresh, color of gleba when freshly cut, milky juice, if any, etc., are earnestly desired.

Hydnangium Ravenelii was named by Berkeley as a variety of Hydnangium Stephensii of England. We do not know the latter plant excepting from description, and Tulasne's figure of the spores. The spores of the American plant are not the same as Tulasne's spores. They are globose or slightly compressed when young, and the spines are more blunt.

We use the word spines as usually applied to the spores of Hydnangium, but are suspicious that it is a mistake. We think they do not have spines but are reticulate, the edges of the reticulations appearing as "spines" as seen under the microscope.

Hydnangium Ravenelii was referred to the genus Octaviania by Tulasne, as found in Saccardo. The distinction between these two genera is not obvious to us, and we have studied species of both genera from Europe. The "cottony" peridium that characterizes Octaviania according to description is not in evidence in dried specimens. The trama is the same, and hardly vesicular as attributed to Hydnangium, nor are the cells of the species "filled with spores." We believe it would simplify matters to call both Octaviania, as Vittadini originally did.

Hydnangium Ravenelii seems frequent in the South. We have specimens from G. C. Fisher, Florida; F. S. Earle, Dr. R. P. Burke, and A. S. Bertolet, from Alabama.

ANTHURUS MACOWANI (Fig. 779). We reproduce the figure of this species that was published recently in Marloth's Flora of South Africa It is quite a rare species and seems to have been named in honor of the fact that it was never collected by MacOwan. The genus Anthurus is known now by only two species, Anthurus aseroeformis (cfr. Syn. Phalloids, fig. 46) in Australia, and this from South Africa and in addition there is a very imperfectly known species in India, Anthurus calathiscus (fig. 49, l. c.) On comparing the figure published by Dr. Marloth, with that of the Australian species published in our pamphlet, it will be seen that they closely approach each other. They differ in shape, but not so much but that they can be a modification of the same. If the South African species proves in time to be the same as that of Australia, I presume I am to blame, for the drawing was submitted and passed on by me before it was published. At that time, however, we had no illustration of the Australian species, and only knew it imperfectly. There is an-

other plant, Lysurus Woodii in South Africa which has been called Anthurus, but it is entirely different in form and its reference to the genus Anthurus was a mistake. The same mistake has been made in America with Lysurus borealis, as it is called in the United States. However, as recently published by Dr. Cleland, who I have no doubt is correct, (and it has been my opinion for a long time), the Australian, Ceylonese and American plants are all one and the same species, and have a local name in each country.

Fig. 779.
Anthurus MacOwani.

HYMENOCHAETE UNICOLOR (Fig. 780). I found in Cuba last spring, a Hymenochaete that I did not know from the Southern United States. I concluded from Berkeley's accounts of Cuban species, that it must be Hymenochaete unicolor, and Miss Wakefield has since compared and confirmed it. It is rarely that one can determine a species from the descriptions, and this was not so determined. It was only by a process of elimination of species that it could not be, that we decided finally what it must be.

Fig. 780.

Hymenochaete unicolor is the same color (cinnamon brown of Ridgway) as H. cinnamomea of Europe. The setae are rather dense, projecting 40 to 60 mic. Spores are 4 x 6, hyaline, smooth. The plant is hard and closely adnate to the host. It was common in Cuba, always grows on a decorticated pole and I have seen them twenty feet long, completely covered with it. What impressed me most was the peculiar way in which the wood was affected. The fungus carries a most peculiar rot (fig. 781.) elongated, white spots, that to the eye contrast strongly with the brown wood. A similar rot called Rebhuhnholz in Germany or "partridge wood" as translated, is caused in the oak by Stereum frustulosum. Hartig gave a full account of it, but it is a sad commentary on the taxonomic knowledge in Germany that Hartig did not know the name for the common Stereum frustulosum and called it a "new species," Thelephora perdix. No wonder that the English translator "did not know it as a British species".

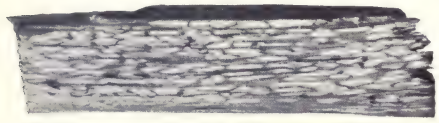

Fig. 781.

Hymenochaete cinnamomea is found generally on oak and is the temperate region analogue of Hymenochaete unicolor in tropical America. It has same color and setae, but is a thick plant, with longer spores 3 x 6-9, and does not seem to attack the wood in the same way.

Hymenochaete spreta is same as Hymenochaete cinnamomea as to color, but has the surface cracked into small areas. It is held by Burt to be a condition of or synonym for Hymenochaete cinnamomea. I am not so sure of that. Cooke referred it as a synonym for Hymenochaete unicolor, but I believe he was wrong on that, for it is a much thicker species, with several annual layers in some specimens, and does not affect the wood the same way.

SYNOPSIS

OF THE

GENUS CLADODERRIS

By

C. G. LLOYD

CINCINNATI, OHIO, - - JULY, 1913

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

THE GENUS CLADODERRIS.

Legend.—This pamphlet is the result of my observations in the Museums at Kew, British Museum, Leiden, Upsala, Berlin, and Paris, and my studies of the specimens found in these museums. It covers authentic specimens of every species named (27) with the exception of five.

Two of Leveille's species, Blumei and formosa, may be at Leiden, but I did not think to hunt for them while there. They are in no other museum. Platensis is not found in any museum in Europe. Roccati, I have not seen the specimens, and Schumanniana I did not succeed in finding at Berlin, though it is said to be in the exhibition department.

Characters.—Cladoderris is a small but elegant tropical genus of Thelephoraceous fungi, very close to the genus Stereum, from which it differs in having costate, often papillate hymenium, and in most specimens a thick, dense, interwoven tomentum layer on the pileus. When Fries proposed the genus he based it on the former only, but the latter is a marked feature of most species.

The specific characters that have value are:

1st. The nature of the hymenium folds, whether narrow and sharp or broad and obtuse. Our illustrations show these characters better than we can describe them.

2nd. The presence or absence of papillae. I doubt if this is an absolute or constant character, for I think there are probably no species in which papillae are always absent, though in the original species Cladoderris dendritica, papillae are absent on most specimens.

3rd. The nature of the upper tomentose layer of the pileus, very dense and thick (Fig. 520) in Cladoderris dendritica (as in the section Funalis of Polystictus) but less developed in Cladoderris infundibuliformis and funalis.

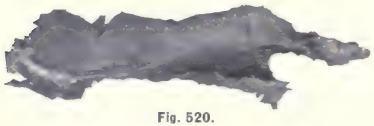

Fig. 520.

Section through Cladoderris dendritica, showing tomentum pad.

The first division of the species by Fries (based on single collections) arranged them on stipe characters, whether sessile, lateral or central. These characters have no specific value, for all gradations are often found in the same collection. Usually specimens have a short or long lateral stipe, the length of the stipe varying much in the same collection. More rarely are specimens found with a central stipe, often the stipe is very short or wanting, but in the latter case the plants are attached by a reduced base.

The spores of Cladoderris are hyaline, hence the plant is very closely related to Stereum in the modern sense, or Thelephora in part, of the early mycologists, but not Thelephora as now usually restricted to plants with colored, rough spores.

Some species of Cladoderris have hyaline cystidia and others appear to have none, but the cystidia characters have not been studied by me in detail.

History.—The first specimen of Cladoderris to reach Europe was collected by Gaudichaud on the voyage of the Uranie (1817-1820) on the Island of Rawak. It was named, figured and described by Persoon (1826) as Thelephora dendritica' and Persoon suggested a distinct genus for which he proposed the name Cladoderris. The type specimen (Fig. 521) is now in Persoon's herbarium at Leiden. Gaudichaud, on a subsequent voyage, collected abundantly the same species in Brazil, which specimens are now at Paris, correctly named by Montagne and Leveille.

There is another old specimen of Cladoderris (elegans) in Persoon's herbarium, source unknown, labeled in Persoon's writing, Hydnum scabrum. It was, without question, the first papillate species to reach Europe, but was not published, although Persoon evidently intended to publish it as his notes for preparing a drawing are still on the specimen.

The next Cladoderris to be named was from Surinam and was distributed by Weigelt under the MS. name Thelephora crassa. This was afterwards called Actinostroma crassa by Klotzsch. It is exactly the same as Cladoderris dendritica, previously named by Persoon.

Junghuhn in 1840 published and figured Cladoderris elegans from Java, under the name Cymatoderma elegans. This was the first papillate species to be published. As it was the first time a separate, generic name had been definitely applied to any species of Cladoderris, it would be an easy matter to juggle all species of Cladoderris under the generic name Cymatoderma on the grounds of priority, but fortunately the professional jugglers have not as yet worked with the foreign Thelephoraceae, hence it has not been done. It is only a question of time, however, when some one will be found, cheap enough to engage in this work.

In 1843 Klotzsch, innocent of any knowledge of what had previously been published, also proposed a new genus Actinostroma, and described two "new species" from Philippines, Actinostroma infundibuliformis and Actinostroma crassa. The former has good characters, the latter which Klotzsch correctly compared with Weigelt's specimen from Surinam, is the same as Cladoderris dendritica.

Fries in Fungi Natalenses (1848) named another species Cladoderris spongiosa, collected by Wahlberg in South Africa. He brought together and listed all that had previously been published, and adopted Persoon's (suggested) name Cladoderris. He arranged the species on stipe characters (of no value, as previously stated) and included nine species. Only four of these (previously mentioned), viz., dendritica, elegans, infundibuliformis and spongiosa are really meritorious, and although about twenty alleged species have since been proposed, I think (with one exception—funalis) all were better referred as synonyms to some one of these four.

Cesati (1879) made the remarkable discovery (which had been known and illustrated forty years before) of the papillae on Cladoderris elegans and immediately proposed a new genus Beccariella based on these papillae, which was held to be valid in Saccardo's compilation (Vol. 6, p. 551). It is needless to say it has no value, as papillae on the hymenium is a character common to all true species of Cladoderris.

KEY TO THE SPECIES.

Pileus entire, even.
Tomentose pad well developed.
Hymenial folds narrow.
Papillae none or few—*dendritica.*
Papillae numerous—*elegans.*
Hymenial folds broad, obtuse—*spongiosa.*
Pileus entire, ridged. Slightly tomentose, rarely with a distinct pad. Hymenium with broad folds and many papillae—*infundibuliformis.*
Pileus dissected.—*funalis.*

CLADODERRIS DENDRITICA (Figs. 521, 522 and 523, pp. 4 and 5).—Color pale, probably white when fresh. Pileus usually flabelliform, rarely infundibuliform, the upper surface even, spongy, with a dense, thick tomentum layer (Fig. 520).

Hymenium strongly marked with narrow, rather sharp, radiating branched ribs. Papillae usually none, but many specimens occur with a few. Stipe short usually, but sometimes well developed, covered with tomentum, as the pileus.

This is the original species from Rawak and is widely distributed, specimens having been seen from Malay, New Guinea, Australia, Philippines, and particularly abundant in Brazil and other parts of tropical America. Usually the plant is entirely free of warts on the hymenium, but I have noted several collections that have a few warts. Thus the specimen at Kew from Brazil (Fig. 523), (Ule No. 12) has distinct warts. The same collection at Berlin has none, according to my notes. I believe that the next species, Cladoderris elegans, is in reality only an excessively warty form, for while the type forms are so different (apparently) there are many connecting specimens in the museums.

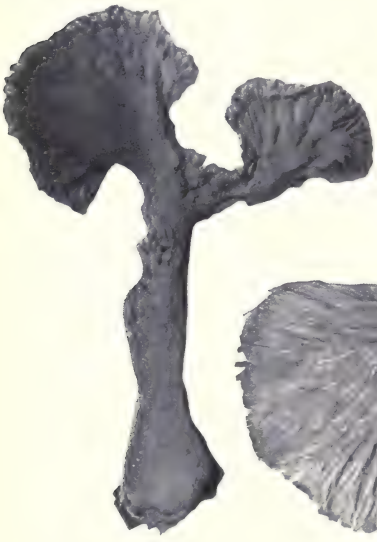

Fig. 521.

Fig. 522.

Cladoderris dendritica, Fig. 521, type from Persoon's herbarium. Fig. 522, type (called crassa) from Klotzsch's herbarium.

CLADODERRIS MEMBRANACEA is only a thin form of Cladoderris dendritica, with no difference, excepting it is a thinner plant, with the tomentum pad on the pileus not so thick. Several specimens are in the museum from Cuba (Wright, 279 and 370) and tropical America. The plant is really misnamed, for while thinner than the type form, it is not thin enough to be called a "membrane." (See page 11)

CLADODERRIS TRAILII, (Fig. 524, p. 6) is for me only an excessively papillate form of Cladoderris dendritica. The type form often develops a few warts, as shown in Fig. 523 below. When these papillae are very numerous it becomes Cladoderris Trailii. In the type specimen the warts are of the ordinary blunt form, but in one specimen at Kew (Fig. 524) they are more slender. The hymenium folds are typically those of Cladoderris dendritica, and is the only type of hymenium folds found in the American tropics. The form of Cladoderris dendritica with very numerous warts is much more rare than the ordinary form, with none or a few warts.

Fig. 523.

Cladoderris dendritica. Subsessile form showing papillae.

CLADODERRIS ELEGANS (Fig. 525, p. 6). As to color, variation as to form and stipe characters, and very often as to the even, thick tomentum pad on the pileus, elegans is similar to dendritica, but elegans has the narrow folds of the hymenium densely covered with papillae. In addition, Cladoderris elegans, as all the Eastern types of Cladoderris, has a more rigid nature than those of the American tropics. And the hymenium folds, while narrow, are more the nature of those of Cladoderris spongiosa, and specimens occur connecting it with spongiosa, rather than with dendritica.

Cladoderris elegans originally from Java appears to be quite frequent in the East in general, and specimens have been noted from Java, Malay, Philippines and Mauritius.

CLADODERRIS SPONGIOSA (Fig. 526, p. 7). Color pale, probably white when fresh. Pileus usually flabelliform, rarely infundibuliform, the upper surface even, spongy, with a dense, thick tomentum

Fig 524.

Cladoderris Traillii, form with slender warts.

Fig. 525.

Cladoderris elegans.

layer. Folds of the hymenium broad, obtuse, with numerous warts. Quite distinct metuloids are found on spongiosa, which do not occur on the American forms. Hence it might be called a "new genus." Spongiosa seems to be an African and Eastern species, absent from the American tropics. It is quite close to Cladoderris dendritica, having the same tomentum layer on the pileus, and the main difference is the broad, more obtuse and flatter hymenium folds.

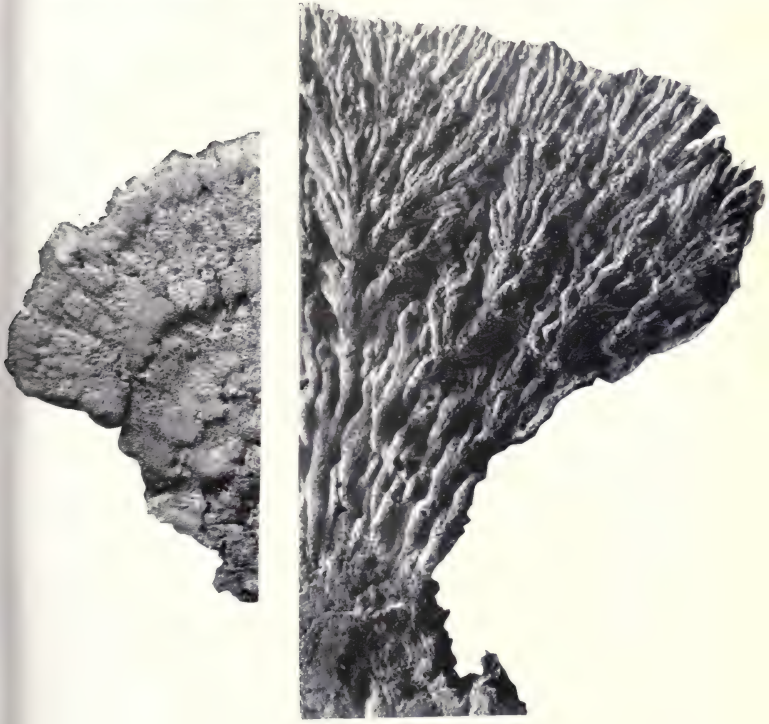

Fig. 526.

Cladoderris spongiosa.
Type specimen in herbarium of Fries.

There are relatively few specimens in the museums from Africa, Australia, Mauritius and Philippines. Nor is the distinction between it and Cladoderris elegans strongly marked, for the nature of the folds is not an absolute character, and many specimens occur that appear to be intermediate.

CLADODERRIS SCRUPULOSA. A specimen at Kew collected by Cantley in Mauritius, has the characters of Cladoderris spongiosa, excepting the pileus is strongly uneven. I think it is only a form.

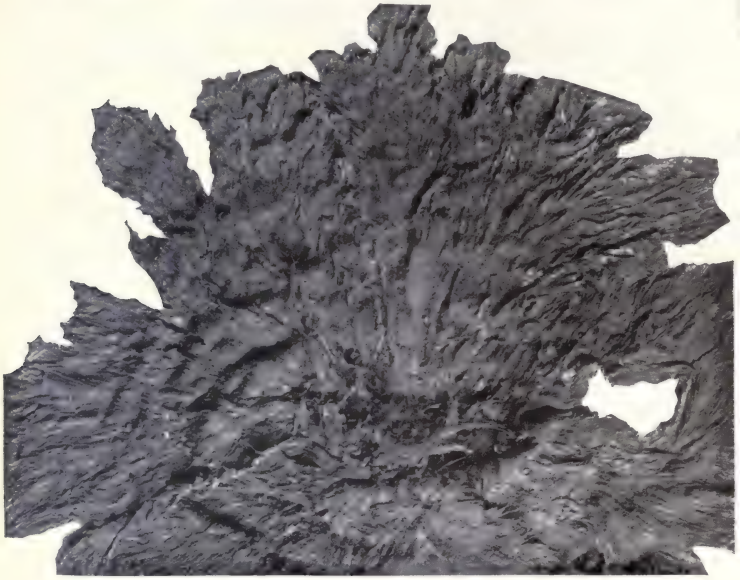

Fig. 527.

Cladoderris infundibuliformis.
Type specimen.

CLADODERRIS INFUNDIBULIFORMIS (Figs. 527, 528, and 529, pp. 8 and 9). Pileus thin, reddish brown, slightly tomentose, uneven, with narrow ridge-like folds. Shape varying from infundibuliform, with mesopodial, short stem to flabellate, orbicular, with short, lateral stem. Hymenium rather narrow folds, with warts.

This species, originally from Philippines, occurs also in Africa. All the preceding species might be broadly considered as forms of the same species, but this is widely different, in having a dark color, thin, ridged pileus, slight tomentum. Usually the tomentum is but slightly developed, or almost none, but is a varying character, as shown in specimens at Kew of the same collection. While it has typically the hymenium of a Cladoderris, in general character it is closer to Stereum caperatum than to other species of Cladoderris. At Kew there are abundant specimens (Fig. 528, p. 9), from J. M. Wood, South Africa (which Cooke referred to Cladoderris australica) that are more smooth than the type of infundibuliformis.

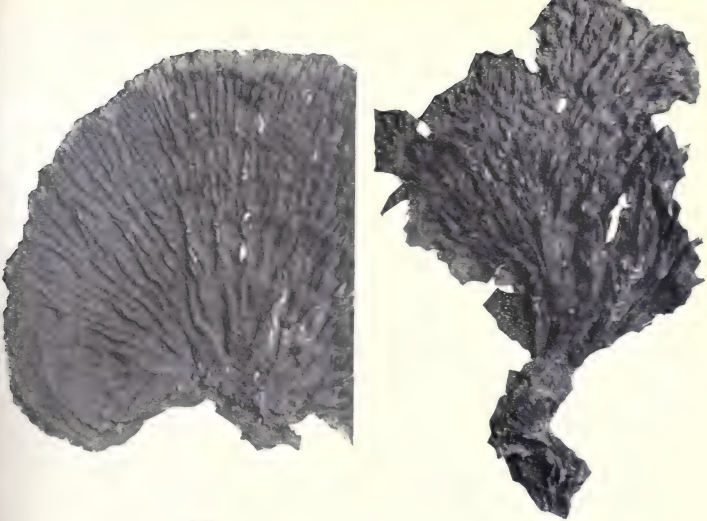

Fig. 528. **Fig. 529.**

Cladoderris infundibuliformis.

Fig. 528, smooth form, from J. M. Wood, South Africa.
Fig. 529, type from herbarium of Klotzsch.

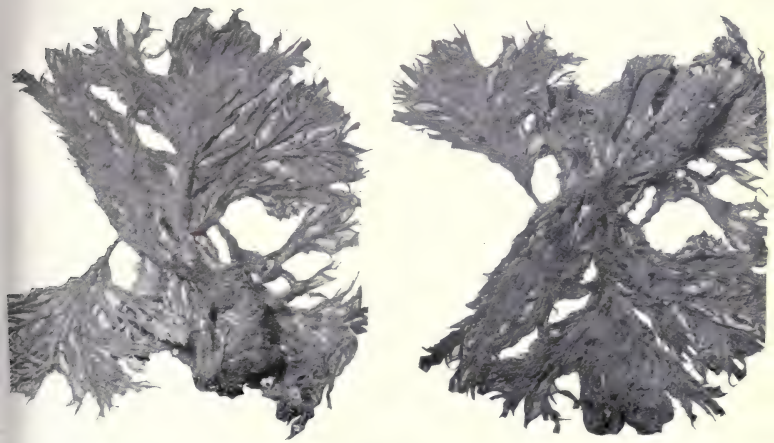

Fig. 530.

Cladoderris funalis.
Type specimen from herbarium at Berlin.

Most of these specimens are flabelliform. In fact, Cladoderris infundibuliform is very badly named, as the infundibuliform shape is unusual.

CLADODERRIS FUNALIS (Fig. 530, p. 9).—Pileus thin, tomentose, dissected into narrow segments. Hymenium swollen, vein-like.

As our figure gives a better idea of the plant than words can, it is useless to further describe it. It is so different from all other species that it is a question if Hennings was correct in referring it to Cladoderris. I am inclined to think it should be so classed. The hymenium is unilateral and swollen, as in Cladoderris, and branches in the same manner. I should not be surprised, however, if it proved to have other names in other genera, such as Lachnocladium. Cladoderris funalis is known to me only from a single collection at Berlin, collected by Winkler in Kamerun.

SYNONYMS, ERRORS AND REJECTED SPECIES.

There are about thirty (so-called) species of Cladoderris, but I am convinced there are but five known that have really distinctive characters. All species based only on shape or stipe attachment have no value, as these characters vary to all degrees in the same collection. The older mycologists with scanty material were disposed to name each collection on unimportant characters. It seems to me the main work that has been done with the genus Cladoderris in the past is to attempt to show the imaginary differences between imaginary species. In the last sixty years I think there has been but one really new species of Cladoderris found (viz., funalis), and it is a question if this is a good Cladoderris.

Australica, Australia, Cooke.—The type (=spongiosa) appears to be from Gippsland, Australia, and was determined by Berkeley as "Thelephora dendritica Fr. (non)". It is the only specimen in the cover from Australia, hence I judge it is the "type," though there is no evidence that Berkeley named it Cladoderris Australica, even in mss., as claimed. Cooke referred here numerous specimens from South Africa (infundibuliformis), which have little resemblance to the Australian plant, and it is evident to me that Cooke's description in the Australian Handbook was mostly drawn from the South African plants.

Australis, Australia, Kalchbrenner.—There is a little cotype at Kew. It is not a Cladoderris.

Blumei, Java, Leveille.—Type is in box 25 at Leiden. It is a synonym for Cladoderris infundibuliformis, sessile, flabelliform specimens. (*Cf.* Fig. 528.)

Brasiliensis, Brazil, Fries (mss.) =dendritica type at Kew.

caespitosa, Brazil, Cooke (as Beccariella), =Polyporus fimbriatus, with undeveloped pores. Compare Stipitate Polyporoids, page 152, Fig. 453.

Candolliana, Brazil, Leveille, =dendritica exactly. Specimen at Paris.

caperatum, Brazil, Montagne.—(Cladoderris for Patouillard). The genus Cladoderris merges into Stereum through all degrees, and no arbitrary line can be drawn between the genera. To be included in Cladoderris, I would require a species to have to a degree all three of the essential characters of Cladoderris, viz., costate, papillate hymenium and tomentose layer of pileus. Stereum caperatum is quite close to Cladoderris infundibuliformis, but never has papillae and is always mesopodial. Besides, there exists a connecting form which has all other characters of caperatum but an *even, smooth hymenium*, hence is a true Stereum. For this reason I believe caperatum is best classed as a Stereum, with a leaning towards Cladoderris.

cartilaginea Singapore, Massee. It has nothing in common with the genus Cladoderris. I did not find any hymenium, but I believe it to be a gelatinous plant, probably a Tremellaceae. It is a unique species of something, but has no relation to Cladoderris.

crassa, Philippines, Klotzsch (as Actinostroma) =dendritica. Exactly the same plant. Type at Berlin.

flabellatum, Brazil, mss. at Kew (as Stereum) =Cladoderris dendritica, thin form (viz., membranacea).

formosa, Java, Leveille. Not seen by me, but said by the author sixty years ago to be almost destroyed. From the description, surely only an infundibuliform specimen of Cladoderris dendritica.

fusca, Brazil, Cooke, =dendritica, only a little more rigid than usual.

gausapata, France, Fries. In the original synopsis of the species of Cladoderris Fries included this European species. It is a Stereum, as Fries afterwards always classified it, and the same as Fries and most every one else called Stereum spadiceum.

Glaziovii, Brazil, Hennings, =dendritica, "harder and more rigid," but same species for me. =also fusca (above) and same collection.

Harrisii, Jamaica, mss. at Kew (as Stereum) =very thin form of Cladoderris dendritica, (viz. membranacea) with folds of the hymenium but little developed.

insignis, Borneo, Cesati (as Beccariella) =Cladoderris elegans. Cotype at Kew.

Kingiana, Malay, Massee (as Beccariella) =elegans (thin specimen).

minima, England, Berkeley. Not a Cladoderris, but a little Stereum. It is only known from two collections from Rev. Stevenson. I cannot agree that "though small, it has exactly the structure of the exotic species." There are no Cladoderris species in temperate regions.

mussooriensis, India, Hennings. Not a Cladoderris, but a Stereum, Hennings having evidently mistaken the top of the pileus for the hymenium. The hymenium is perfectly smooth, and the plant has nothing whatever in common with Cladoderris. The spores (abundant) are 5 x 6, hyaline, smooth (not echinulate, as stated by Hennings).

paradoxa, Philippines, Leveille (as Thelephora, but classed as Cladoderris in cover now). It is a Stereum and probably abnormal at that.

platensis, South America, Spegazzini. Unknown to me. Appears, from the description to be thin form of dendritica, viz., membranacea.

Pritzelii, Australia, Hennings. Only known from one specimen at Berlin. In its macroscopic characters same as spongiosa, but this specimen has no stem. The hymenium has large metuloids (unknown to the author), hence a "Lloydella-Cladoderris."

Roccati, Africa, Mattirolo. Not seen by me, but from the description, surely same as reached Cooke so abundantly from South Africa and which Cooke referred to australica, but which I would refer to infundibuliformis, a smoother and flabellate form.

Schumanniana, New Guinea, Hennings. Not found by me at Berlin, but said to be in the "Exhibition department."

Thwaitesii, Ceylon, Berkeley. Type material (all known) very poor. Evidently close to dendritica as to hymenium, but appears to have no tomentum layer. The types are two little, spathulate plants. It will probably prove to be a good species when known.

P. S.

Cladoderris membranacea. Our account on page 4 was written at Kew and we took the name in the sense of Berkeley and the other specimen at Kew. If my memory serves me right, there is a specimen at Kew supposed to be a cotype. At Paris later we found an undoubted cotype. It is not the same as has been so taken at Kew and in my opinion is not a Cladoderris.

INDEX AND ADVERTISEMENTS.

Species considered valid in this pamphlet. Those held to be of distinctive specific rank are in large type. Those better considered forms or varieties, in smaller type.

The synonyms and doubtful species are arranged alphabetically on preceding pages.

CLADODERRIS DENDRITICA, Persoon, page 3, Fig. 521.

CLADODERRIS ELEGANS, Junghuhn, page 5, Fig. 525.

CLADODERRIS FUNALIS, Hennings, page 10, Fig. 530.

CLADODERRIS INFUNDIBULIFORMIS, Klotzsch, page 8, Fig. 527.

CLADODERRIS MEMBRANACEA, Leville, page 4.

CLADODERRIS SCRUPULOSA, Cantley, page 8.

CLADODERRIS SPONGIOSA, Fries, page 5, Fig. 526.

CLADODERRIS TRAILII, Cooke, page 5, figure 524.

SYNOPSIS

OF THE

STIPITATE STEREUMS

By

C. G. LLOYD

CINCINNATI, OHIO, - - DECEMBER, 1913

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

REV. M. J. BERKELEY

Through the courtesy of Mr. J. Ramsbottom, who furnished us the original, we present a photograph of Rev. Berkeley evidently taken during the latter years of his life. We are all familiar with the figure of Berkeley which appeared in Grevillea and elsewhere. In the interim between these two pictures Berkeley has evidently had his hair cut, which he badly needed, and has grown a bunch of whiskers, much to his facial improvement.

THE STIPITATE STEREUMS.

LEGEND.—For some years we have been quite embarrassed by receiving many specimens of Stereums from foreign correspondents that we could not name, as we were familiar only with the species of Europe and the United States. During the past winter we studied by comparison, and by microscopical sections, the various historical specimens we found named in the several museums we visited (Kew, British Museum, Leiden, Berlin, and Paris). We found the Stereum species, as we find all mycological sections that we investigate, in a very chaotic and confused condition, owing to the multiplication of names and the careless and superficial work of those who have engaged in the promulgating of so-called "new species." Particularly is this true as regards the stipitate section of the genus, which, it appears to me, was in much worse condition (if possible) than the Apus section.

In the earliest systematic work worthy of the name, Persoon's Synopsis Fungorum (1801), the Thelephoraceous plants, which are fungi with even hymenium, are divided into two genera, Thelephora and Merisma. The latter embraced the species of an encrusting nature, and while not so clearly defined is the same exactly as has in recent years been discovered to be a "new genus" and called "Soppittiella."

The remainder of the plants which Persoon called Thelephora he divided into three sections—

Craterellus—Pileus stipitate.
Stereum —Pileus dimidiate.
Corticium —Resupinate.

It will be noted that the plants embraced in this pamphlet would have been originally classed by Persoon under the sectional name Craterellus, and they may still be so juggled with as much merit as belongs to the most of such cheap work as is being done nowadays under the guise of "priority." In late years they have been called Podoscypha, also without much originality, as Persoon called the same section Craterellus.

In the usually-employed Friesian system, which is only a modification of that of Persoon, Corticium was taken in nearly its original sense. Craterellus was restricted to the fleshy species and did not include either of the original species, and the remainder of the species were divided between Stereum and Thelephora. Exactly what distinction Fries had in mind between Stereum and Thelephora, it is hard to define. The "homogeneous" and "heterogeneous" nature of the tissue on which he based the difference is not marked enough to be the base for generic distinction. All of Fries' species of Stereum have hyaline spores and pale hymenium, and most of his species of Thelephora have colored spores and dark hymenium. It is the tendency of late years to make this the distinction between the two genera, and in my opinion it is the best. Many of the old species classed as Thelephora under this definition will fall into the genus Stereum.

Modern "systematists" find it to their interest, of course, to break up the old genera into as many "new genera" as possible in order to make a lot of new names, which is the only advantage, and of very doubtful utility. Thus Karsten in 1881 discovered that stipitate Stereums form a new genus, which he called Cotilydia. Patouillard in 1900 discovered that the same section was a "nov. gen.," which he called Podoscypha.

There is another group of "systematists" who are engaged in discovering "new genera" on the "hairs" they find on the hymenium. Léveillé was the father of these hair experts, but he was not particular as to the kind of "hairs." Any Thelephoraceous plant which had hairs was for Léveillé a Hymenochaete, though he did not observe the subject closely enough to know which of his own species belonged to his "new genus." Cooke carried the matter further and divided the "hairs" into

two sections—Hymenochaete with colored hairs, which he termed setæ, and Peniophora with hyaline hairs, which he termed metuloids. Bresadola (or perhaps it was Karsten) found that the original species of Kneiffia had hyaline hairs, and at one time would have changed all Peniophoras to Kneiffia on the strength of "priority;" but he has since quite happily abandoned it, also on the grounds of "priority," I believe. His most recent discovery is that the pileate species with colorless hairs (which he called Lloydella) is a different genus from the resupinate species with colorless hairs.

The hair feature of Thelephoraceæ has in recent years been exploited with great detail by von Hohnel, who bases a "new genus" (and adds "von Hohnel" to each species as an incidental and necessary feature of such work) on each size, shape, exudation, coloration, and position of the hairs he finds on the hymenium. This is very pretty in theory but quite embarrassing in practice, for the hairs grade into each other in all degrees, and when the system is worked out there will be more doubtful species (as to "genus") than before. Another very objectionable feature to me is that it practically suppresses the old-established genus Stereum, for I find when I come to look into the details that the greater part of the species of foreign Stereums have hairs of some sort, and most of them become Lloydellas. I have indicated them for the benefit of the future "scientist" who may desire to juggle them, and add his name to them. I am glad to note that in our most recent paper our latest investigator (Miss Wakefield, Trans. British Myc. Society, 1912) recognizes the unsatisfactory nature of the hairs as a basis of classification and the difficulty in several instances of deciding whether they are "outgrowths" of a Corticium or "cystidia" of a Peniophora. While the consideration of these problems may be necessary in treating of the resupinate species, owing to their excessive number, there is no reason, except the desire for a "change," why it should complicate the genus Stereum. It is neither so large nor so difficult that it is necessary or advisable in my opinion to break it up in such an artificial manner. We have therefore taken the genus Stereum in its usual meaning, believing that little improvement is made in tinkering with it and changing it on either "stipe" or "hair" features.

DIVISIONS OF THE GENUS STEREUM.

We would divide the genus, as Persoon did, into three general classes, viz.: stipitate, sessile, and resupinate or subresupinate.

Stipitate species have a stipe either mesopodial or pleuropodial, or are reduced to a stipe-like base. Stereums with stems have been discovered to be a "new genus," but we feel they are best classed as a part of the old genus Stereum. We see no more reason why a stem in a Stereum should make a genus than a stem in any other class of fungi. The stipitate species we divide into eleven sections, as follows:

No. 1.—Cladoderris. This section has a mesopodial stem, uneven, pileate hymenium (usually), and a pad of matted hairs on the pileus. It is the connecting link between the genus Cladoderris and Stereum, and could be classed with either.

No. 2.—Stipitate, with a mesopodial stem. Smooth, white or pale.

No. 3.—Stipitate, mesopodial or pleuropodial (often both). Smooth, yellow or purplish red.

No. 4.—Stipitate, mesopodial or pleuropodial. Smooth. Reddish, bay-brown (at least when dry).

No. 5.—Stipitate. Pileus hirsute, often zoned. Hymenium even.

No. 6.—Merismatoid in manner of growth.

No. 7.—Clavarioid in general form. Cut into narrow segments. This differs from Clavaria in having the hymenium only on the lower side of the segments.

No. 8.—Erect, dendroid, with the form of a Clavaria. Hymenium amphigenous.

No. 9.—Petaloid with lateral stem, glabrous.

No. 10.—Petaloid, with lateral stem, hirsute.

No. 11.—Section hymenochaete (stipitate). Having colored, rigid setæ on the hymenium.

SECTION 1.—(APPROACHING CLADODERRIS.)

This section has a mesopodial stem, uneven, plicate hymenium (usually), and a pad of hairs on the pileus. It is intermediate between Stereum and Cladoderris. It differs from Cladoderris in never having papillæ on the hymenium, and in more obtuse folds of the hymenium. It runs into Stereum (typical) through species with even hymenium. Most species have metuloids (hence Lloydella).

Fig. 531

Stereum caperatum.

STEREUM CAPERATUM (Fig. 531).—Pileus infundibuliform with a mesopodial stem. Surface with radiating ridges, and (usually) with a pad of coarse, matted hairs. Hymenium rugulose with obtuse folds. Stem with a pad of matted tomentum. Cystidia true metuloids, conical, rough, projecting 20-30 mic. (hence Lloydella).

This is quite a frequent species in many tropical countries. Specimens are in the museums from Brazil, West Indies, Samoa, Philippines, Australia. It occurs in Southern United States, and I have collected it in Florida and Louisiana.

The stipe usually long and slender in tropical American forms, is often short and thick in Australian forms. The pad of hairs on the pileus varies, in some specimens a dense pad covering the surface, in others almost absent; and the same variation can be noted as to the stipe hairs.

Stereum caperatum was described by Montagne as Thelephora and has been called Cladoderris. It could be called Podoscypha, Lloydella, Peniophora, and no doubt other things if one were hunting an excuse not to call it Stereum caperatum. It is quite close to Cladoderris infundibuliformis, but is quite distinct in my opinion. Many specimens of it in the museum are labeled (in error, I think) Cladoderris infundibuliformis.

Fig. 532
Stereum hylocrater.

Fig. 533
Stereum spongiaepes.

STEREUM HYLOCRATER (Fig. 532).—This species, known in the museums of Europe from Balansa's South American collection, is only a form of Stereum caperatum with an even hymenium. The other characters, surface, spongy stipe etc., are typical.

STEREUM SPONGIAEPES (Fig. 533).—Pileus infundibuliform, reddish brown, with a spongy, tomentose pad. Hymenium even. Cystidia none. Spores globose, hyaline, smooth, 4 mic. Stipe with a thick pad of spongy tomentum.

This species is related to Stereum caperatum, but is much more scantily known. The type (Australia) is in the British Museum. The type is not so typically "spongiaepes" as our figure, but evidently same species. No specimen is at Kew excepting a recent collection from New Caledonia. The species was listed by Berkeley both as Thelephora and Stereum, and is compiled under both genera in Saccardo. It is rare in the museums of Europe, and the only specimens I have seen are at London and a misnamed specimen from Australia at Berlin.

SYNONYMS, ETC.

Cladoderris infundibuliformis is quite a different plant from Stereum caperatum, but many specimens of the latter are labeled in the museums as being Cladoderris infundibuliformis.

Stereum Golias, South America, Spegazzini. Cotype at Paris is typically Stereum caperatum subsessile specimen.

Stereum infundibuliforme, South America, Hooker (as Thelephora) (not Cladoderris infundibuliformis as often determined). No type exists. I found none at Kew and Berkeley states somewhere that he never saw one. From the short description it is almost surely the same plant as now known as Stereum caperatum. Stereum infundibuliforme was compiled in Fries' Epicrisis, but seems to have escaped Saccardo.

SECTION 2.

Stipitate, with a mesopodial stipe. Smooth, white or pale. I suspect that some plants are included in Section 4 which are brown as found in the museums and "white or pale" when growing.

Fig. 534
Stereum diaphanum.

STEREUM DIAPHANUM (Fig. 534.)—Pileus infundibuliform, with thin margin. Smooth, pale or white. Stipe mesopodial, slender, glabrous, or white with mycelial pubescence, rooting. Hymenium even, white. Cystidia, none.

This plant occurs very rarely in the United States, and there is one collection known from Japan. It is quite different from our other

native Stereums. It was named by Schweinitz, and his specimens are still in existence. When fresh the plant is white, but old specimens turn brownish with age.

SPECIMENS.—We have never seen this rare plant growing, but have received specimens from several correspondents.

STEREUM UNDULATUM (Fig. 535).—Pileus mesopodial, thin, infundibuliform, smooth, pale gray, faintly zoned when fresh. Stipe short, slender, villose. Cystidia hyaline, smooth. Spores elliptical, 2 x 5, smooth.

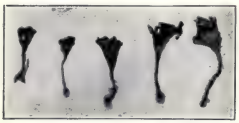

Fig 535

This is the tiniest little Stereum that we have, and is quite rare and never has been correctly known in American mycology. It occurs on the naked ground, preferably burned, it is said. In Europe it is mostly recorded from northern stations, and the plant is known in the museums chiefly from Karsten's Exsic. No. 912. The record in England is an error of determination. Fries placed it in Thelephora. It has been called Craterellus, Merulius, Hymenochaete, Podoscypha, Bresadolina, and could be called Lloydella on the nature of its hairs. We think it is best called Stereum. As to specific names, it has been named two or three times by both Peck and Berkeley, as found in our synonyms.

SPECIMENS.—I have never collected this little rare species, but have seen it in Peck's museum, and Karsten's Exsic. in several museums. I have a specimen from V. de Aranzadi, Spain.

ILLUSTRATIONS.—Ann. Myc., Vol. 7, p. 427. (The figure Bulliard t. 465, fig. 1, cited by Saccardo is an error for Cantharellus crispus. It has no resemblance whatever to Stereum undulatum.)

Fig. 536
Stereum Sowerbyi.

Fig. 537
Stereum Burtianum.

STEREUM SOWERBYI (Fig. 536).—Pileus ungulate, repand infundibuliform. White, discoloring in drying. Stipe short, white, not strongly distinct from the pileus. Inner surface fibrillose with radiating fibrils. Grows in the ground, and only known from one locality (Burnham Beaches), England, and not, I believe, in recent years. It was illustrated (T. 155) by Sowerby as Thelephora pannosa, and his specimens are still at Kew; but the figure, while evident, is not good. When Berkeley first received the plant he referred it to Thelephora laciniata Sow. t. 158, which being a duplication, he changed the name to Thelephora Sowerbyi. Afterwards when he

more correctly referred it to Sow. figure t. 155, he did not change the name, though there is no reason why Sowerby's original name Thelephora pannosa (or Stereum, it being a Stereum) should not be used, surely none based on priority.

STEREUM THOZETII is known from three specimens at Kew from Australia. Infundibuliform, entire, pale, smooth, even, with a short stalk. It grew in earth.

STEREUM BURTIANUM (Fig. 537).—Mesopodial or pleuropodial. Pileus pale brown, infundibuliform, lobed or incised, uneven, with radiating ridges. Sometimes spathulate, glabrous, with striate margin. Stipe concolorous, smooth. Hymenium concolorous. Cystidia, none.

This species was named and figured in Peck's 57th Report. But one collection of the American plant so named is known, which we have seen in the museum at Albany. I have, however, a collection from A. Yasuda, Japan, which, on comparison with my notes and Peck's description, I think must be the same species. I find the same plant also at Kew and Berlin from California under the (mss.) name Stereum Harknessii, but I believe this was never published.

Compare Stereum pallidum in Section 6.

SYNONYMS, ETC.

Thelephora Komobensis, Japan, Hennings, known from one collection in Japan, is Stereum diaphanum, a rare species of the United States. Its occurrence in Japan is of interest.

Stereum pannosum, England, Sowerby (as Helvella). The original name for Stereum Sowerbyi as changed by Berkeley. This change was made through a mistake of reference as Berkeley afterwards concluded, but he never changed back the name and we do not engage in that kind of work.

Stereum rivulosum, Cuba, Berkeley. Only known from the type locality, two *little* specimens each about the size of pin-heads. We do not know, but we do not doubt that they are Stereum undulatum.

Stereum tenerrimum, Southern United States, Berkeley = Stereum undulatum. Also same in Peck's records.

Stereum Tuba, Ceylon, Berkeley. This is not at all a Stereum, but a Cyphella which appears quite common in Australian regions. We collected it in Samoa and it was named Cyphella grandis (Myc. Notes, p. 258). Hennings also has a name for it, from Samoa. McGinty calls it Cyphella Tuba (Berekeley) McGinty.

Thelephora exigua, United States, Peck = Stereum undulatum.

Thelephora Harknessii, "n. s." Harkness No. 475 in Phillip's herbarium, British Museum (also at Berlin), is Stereum Burtianum.

Thelephora liliputiana, South America, Montagne is Isaria (sic) flabelliformis. Peck, it seems, was not the only one to discover that this was a "new species" of Thelephora (cfr. Thelephora rosella below).

Thelephora rosella, United States, Peck = Isaria flabelliformis. It is supposed to be a conidial Pyrenomycete, but its ascous form is not known. There is, however, no basis whatever for referring it as the conidial form of Xylaria corniformis as found in Ellis's Pyrenomycetes. (Cfr. Letter 43, Note 44.)

Thelephora Sullivantii, United States, Montagne = Stereum diaphanum, type at Paris.

Thelephora Willeyi, United States, Peck = Stereum diaphanum.

SECTION 3.

Stipitate, with a mesopodial or lateral stipe. Smooth, bright color when fresh, yellow in one species, bright purplish-red in another.

STEREUM AURANTIACUM (Fig. 538).—Pileus mesopodial infundibuliform, or spathulate with lateral stipe, both shapes found sometimes in same collection (as shown on Montagne's figures), but usually the collections are either all mesopodial or all pleuropodial. Smooth, minutely silky, striate, the base of the stem with a yellowish tomentum often forming a little disc on the host. Color of dried plant fresh, uniform, yellow, but my collection notes in Samoa give the hymenium surface as bright sulphur yellow, upper surface pale yellowish white. Stipe pale, almost white. Old specimens lose the bright color of fresh plant and become brown.

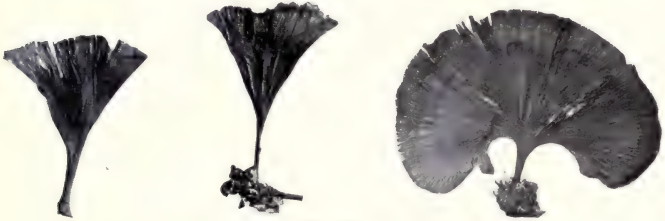

Fig. 538

Stereum aurantiacum.

I think there is but one yellow, stipitate Stereum in the tropics, although spathulate and infundibuliform collections appear quite different. Montagne and Spegazzini both claim they are the same species, and a collection we have from Madame Anna Brockes, mostly infundibuliform, a few spathulate, bears out this view. Persoon described it as petaloid. We think the position of growth has much to do with the form.

The types of Stereum aurantiacum both at Paris and Leiden are not surely this plant, but more probably Stereum affine. They are old and discolored, but Persoon's color description does not refer to affine, hence I have taken the name in the sense of Montagne's and Berkeley's more recent specimens, and apparently from the description in the original sense.

ILLUSTRATIONS.—Beautifully illustrated by Montagne, Voyage La Sagra, Plate 1 (not Persoon's Voyage Freycinet, as incorrectly cited in Saccardo's citation of Icones).

SPECIMENS.—Anna Brockes, Crixas, Brazil, mostly mesopodial; C. G. Lloyd, Samoa, all pleuropodial. It was quite rare in Samoa.

STEREUM HARMANDI.—Pileus spathulate, flabelliform, thin, glabrous, peculiar purplish-red color. Stipe short, evidently growing in the ground.

This peculiar species differs from all other known Stereums in its color, which is quite marked. It is known only from one collection at Paris recently made at Tokyo, Japan, by Dr. Harmand.

SYNONYMS.

Stereum alutaceum, Brazil, Cooke. The type, and it is "only known from the type locality," is not "alutaceous" now as described, but "tabacinus" would be better. If it ever was alutaceous it would be better referred to Stereum aurantiacum. The collector's note is "originally buff," but it seems to have been preserved in carbolic acid, and I suppose the "original" refers to a change that had taken place. The specimen is probably Stereum aurantiacum with the color changed by chemical treatment.

Stereum cartilagineum, Brazil, Fries. No authentic specimen seen by me, and original description probably refers to a plant of American tropics since called Cantharellus buccinalis. I have seen two collections so named, Kalchbrenner's at Berlin, and Montagne's at Paris, neither of which has any possible agreement with Fries' description.

Stereum xanthellum, South America, Cooke = Stereum aurantiacum.
Thelephora affinis, Cuba, Berkeley = " "
Thelephora sericella, Cuba, Berkeley = " "
Thelephora spectabilis, West Indies, Léveillé = " "

Thelephora tuberosa, St. Domingo, Persoon mss. name for plant collected by Poiteau, is Stereum aurantiacum of this pamphlet. This is collateral evidence of what we have elsewhere stated that the plant we call Stereum affine is as a matter of history the same as Stereum aurantiacum originally.

SECTION 4.

Stipitate, with a mesopodial stipe (usually). Smooth. Color reddish brown-bay. This is the most puzzling section to work out. In the museum most tropical specimens belonging to this section are classed as "Stereum elegans," very few of them correctly. The color of the museum specimens in all species is very much same reddish brown-bay, and the species have been most badly confused in every museum. I suspect that this color in some species is due to a change in drying. The collector's notes in some instances are "pale" or even "white" when fresh, but habits of growth, whether in earth or on branches and wood, whether growing densely caespitose or scattered, seem to be the main differences.

Fig. 539
Stereum elegans.

Fig. 540
Stereum floriforme.

*WITHOUT CYSTIDIA. GROWING IN THE GROUND.

STEREUM ELEGANS (Fig. 539).—Pileus glabrous, growing in the ground, densely caespitose and confluent, imbricate, forming a rosette, irregularly infundibuliform with thin margin. Color dark, reddish-bay. Stipes distinct. Hymenium often glaucous, uneven in folds (hence incorrectly referred by some to Cladoderris). Cystidia, none. Spores globose, hyaline, smooth, 4 mic.

This is a frequent plant, particularly in Australia. Its original identity is based on Meyer's description, which has little application to the plant usually so referred. It was one of the first foreign species named. Meyer described it as above, "Gregarie crescens, subcompressus, undulatoplicatus, ad terram argillosa," which has little application to the usual determinations.

Its habits are peculiar, consisting of separate individuals, with distinct stipes, the pilei becoming confluent into an imbricate rosette-like cluster. It is very common in Australia, was originally from South America, but evidently is widespread in the tropics. We have specimens from India, Ceylon, and the West Indies. At Berlin Hennings determined Stereum elegans as Stereum nitidulum. Berkeley seems to have referred several different species to Stereum elegans.

ILLUSTRATIONS.—None published. Figures cited, Patouillard and Hennings, both misdeterminations.

SPECIMENS.—*Australia*, F. M. Reader, J. T. Paul, Edmund Jarvis, W. R. Guilfoyle, A. G. Hamilton, Miss E. T. Turner. *Ceylon*, T. Petch. *Jamaica*, Wm. Cradwick. *India*, Donor Unknown. *Japan*. A. Yasuda.

STEREUM FLORIFORME (Fig. 540).—Caespitose, connate, infundibuliform or spathulate, glabrous excepting tomentose at base, reddish-bay color. Growing in the ground, caespitose, the individual mostly concresive.

This is named on a sheet at Kew, a correction of Cooke's determination of "Stereum Moselei" (with no resemblance to Moselei). It is quite close to Stereum elegans, same color and habits of growth, but is thicker, more spathulate, and the base of the stipe is tomentose.

I have a specimen (Fig. 540) from G. A. Gammie, India, which, as far as the plant goes, seems to be same species, but the white mycelium binds the soil together in a hard lump.

SPECIMENS.—Dr. G. Zenker, Camerun, Africa (typical). G. A. Gammie, Poona, India.

STEREUM CRENATUM (Fig. 541).—Pileus glabrous, deep, reddish-bay color, subinfundibuliform, but more or less lobed and irregular. Stipe slender, rooting, minutely tomentose.

This is rather a rare species, easily confused with Stereum elegans, from which it differs in its separate habits of growth and slender stipe. The type at Paris is a single head from Java. Recent South American collections were distributed by Ule as Stereum petaloides, as misdetermined by Hennings. At Paris is a specimen from French Congo.

STEREUM NITIDULUM (Fig. 542).—Pileus smooth, zonate, reddish-bay, infundibuliform, with mesopodial stipe, and rooting base. The type specimen (from Brazil) grew in the sand which forms a ball at base of stem. One of the specimens has a long rooting base.

Berkeley referred to nitidulum from Ceylon, specimens that I think have no resemblance to it and which I would refer to elegans. Stereum nitidulum occurs both in American tropics and the East. As found in the museums, it is generally furnished with a rooting base. Sometimes it is quite small. Recent collections by Rick are referred to Stereum elegans.

Fig. 541

Stereum crenatum.

Fig. 542

Stereum nitidulum.

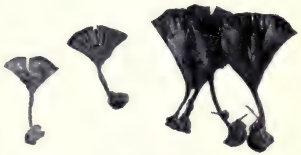

Fig. 543

Stereum Ravenelii.

The following two species are quite close to nitidulum. Same shape, surface, color, etc., but they differ in habits and size.

STEREUM RAVENELII (Fig. 543).—This is quite close to Stereum nitidulum, but more slender and delicate and with a more slender stem. It grows in

moist places in the woods (not in the sand), and has no long, rooting base as has nitidulum. It is known only from Southern United States.

STEREUM PUSILLUM.—As to habits and color, this is the same as Stereum nitidulum and Stereum Ravenelii, and very close to the latter. It occurs in the East and Africa. It is known in London from a single specimen (type) in British Museum originally named Clavaria pezizaeformis by Koenig. Two collections at Kew so named have no relation to it. I have a collection from James G. Brown, Philippines, and there is an abundant collection at Leiden from Java (determined Stereum surinamense) and at Berlin from Africa (referred to Stereum pergameneum).

STEREUM BOLLEANUM.—The types of this plant from Africa are in the herbarium of Montagne. It is similar to Stereum nitidulum in habits and color, but has a longer stem and is zonate. The hymenium surface is pruinose, and of a different color from the upper surface. The types only at Paris are so named, but I think other collections have been mostly referred to Stereum nitidulum.

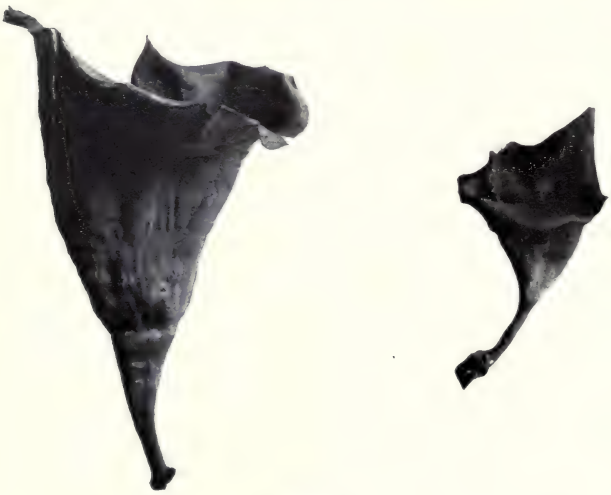

Fig. 544

Stereum surinamense.

**GLABROUS. CYSTIDIA NONE. GROWING ON WOOD.

STEREUM SURINAMENSE (Fig. 544).—Infundibuliform, tapering to a short, dark stem. Both surfaces glabrous, and similar dark, reddish-bay color. The upper surface is slightly zoned. It is very

thin and brittle when dried. Cystidia, none. The microscope shows a few minute, hyaline hairs on upper surface, which are not visible to the eye.

This is quite a frequent plant in the tropics, and numerous collections at Kew and Berlin have been generally misreferred to Stereum elegans, from which it differs entirely in its habits of growth. It grows singly or gregarious on branches and wood. I found it in Samoa varying from an inch or two in diameter up to three or four inches. However, I have not noted such large specimens in the museums. There are specimens at Kew (referred to Stereum elegans) from Africa, Brazil, Australia, East Indies, West Indies, and Ceylon. While Berkeley usually referred it to Stereum elegans, a single specimen from San Domingo he called Stereum fulvo-nitens. Recent collections from the Philippines are in error referred to Stereum Junghuhnii.

SPECIMENS.—While it is frequent in the museums of Europe, we have only our own collection from Samoa.

Compare Stereum affine and Stereum malabarense in Section 9, similar plants as to color and habits, but flabelliform as to shape.

Fig. 545
Stereum pergameneum.

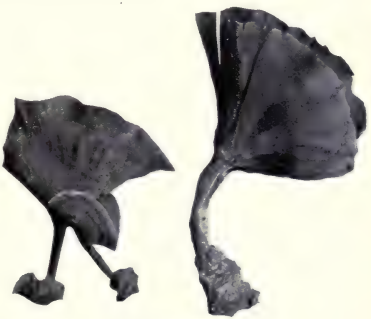

Fig. 546
Stereum Mellisii.

STEREUM PERGAMENEUM (Fig. 545).—This has very much the shape and color of Stereum nitidulum, but differs in habits. It grows on rotten wood and has no rooting base. It is best known from Rav. Exscc. No. 25, and, I think, has never been collected by any one excepting Peters in Alabama. I can not be sure that Stereum pergameneum is other than old, discolored specimens of Stereum diaphanum, but it is so much darker than any of my specimens of diaphanum that for the present I prefer to hold it as distinct.

STEREUM MIQUELIANUM.—This seems to differ from Stereum pergameneum as Ravenelii differs from nitidulum in being thinner, more slender, and more delicate species. It occurs in Brazil, and at Kew is named in mss. by Cooke, Stereum Trailii. I have also a specimen from Rev. T. Gillet. Congo Belge. It grows on branches and, according to Trail's collection notes, was "whitish when fresh." No type of Stereum Miquelianum was found by me in Montagne's herbarium, but from locality, habitat, and description I have little doubt it is the same plant that I saw at Kew.

*** WITH METULOIDS (LLOYDELLA).

STEREUM MELLISII (Fig. 546).—Pileus infundibuliform, varying to flabelliform. Color dark bay without zones, and often with paler margin. Hymenial surface, even, concolorous, velutinate to the touch. Stipe dark, slender, with a brown tomentose pad at base. Metuloids numerous, varying from 4 to 12 mic. thick, conical, hyaline, rough.

This is a strongly distinct species originally from Saint Helena and found also in Malay, Philippines, and the other Eastern countries. It is darker color than any of the preceding. The velutinate hymenium is caused by numerous metuloids. In the sense of Bresadola, and partly of Léveillé, this is Stereum affine, Léveillé in his "type" at Paris having included a specimen of each species. The type of affine is at Leiden, quite another plant from Mellisii. The type specimens at Kew are infundibuliform, but collections are often flabelliform. Marked features of the plant are the numerous metuloids, and also a thick tomentose pad occurring at the base of the stem.

Stereum Bresadoleanum, which might be sought here, we have placed in Section 9 on account of its evidently close relation to Stereum involutum.

SYNONYMS.

"Cladoderris australica, Berk. Herb." Kalchbrenner's writing at Berlin. It has no resemblance to "Cladoderris australica Berk. Herb.," and while it does not agree with the description, I suppose it is the original of "Cladoderris australis Kalch." It is Stereum elegans.

Stereum alutaceum, Brazil, Berkeley, which from its color (now) comes in this section, will be found in the preceding section.

Stereum curtum, "tropics," Fries. The types are at Berlin, originally in Willdenow's herbarium In my belief they are little, depauperate specimens of Stereum surinamense, and, of course, a very much "prior" name for it. However, they are so depauperate and the name is so inappropriate that I do not feel disposed to use it.

Stereum cyathoides, Africa, Hennings. Types at Berlin. Based on depauperate specimens of Stereum nitidulum.

Stereum fulvo-nitens, San Domingo, Berkeley, = Stereum Surinamense.

Stereum Junghuhnii, Java, Fries, change of Thelephora striata, which see below.

Stereum macrorrhizum, South America, Léveillé (as Thelephora) = Stereum elegans of an unusually regular growth. Not so confluent as ordinary. Types at Paris.

Stereum modestum, Asia, Kalchbrenner. No species found in the museums, but from description apparently same as Stereum nitidulum.

Stereum Moselei, Australia, Cooke's determination as found in Handbook is Stereum floriforme and has no resemblance to Stereum Moselei of Berkeley.

Stereum Moselei, Philippines, Berkeley. Known only from type. It is pale color, but has same shape, surface, and metuloids, and I do not question is same plant as Stereum Mellisii.

Thelephora paradoxa, Java, Léveillé, based on the same collection as Thelephora striata (see below) which was an abnormal growth of some Stereum. It is classed in the Cladoderris cover now at Paris (cfr. Syn. Cladoderris, p. 11).

Thelephora striata, Java, Junghuhn. The type is in box 367 at Leiden. It was described by Junghuhn as growing caespitose and connate on the ground. It does not so impress me, but at any rate I consider it an abnormal growth of some Stereum. Fries changed the name to Stereum Junghuhnii and Léveillé based Thelephora paradoxa on the same collection. I think it is not a normal plant.

Stereum Trailii, South America, Cooke (mss.). Same, I believe, as named Stereum Miquelianum by Montagne.

SECTION 5.

Stipitate with a mesopodial stipe. Pubescent or hirsute. Hymenium even.

STEREUM HYDROPHORUM (Lloydella) (Fig. 547).—Infundibuliform, cup-shape, rather thick and leathery. Color brown, with pubescent surface with raised zones. Hymenium brown, velutinate to touch. Stipe solid, round, even, brown velutinate. The hymenial surface is velutinate with (cystidia?) projecting hyphæ, slender, subhyaline (slight colored), sometimes branched and irregular. Tissue composed of colored hyphæ, and the pubescence is colored.

Fig. 547
Stereum hydrophorum.

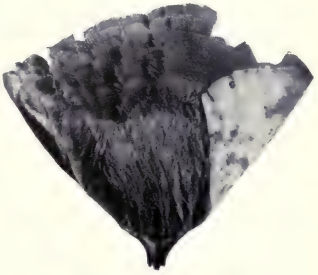

Fig. 548
Stereum "nitis Avis."
(Reduced one-half.)

There are several collections at Kew, all from Brazil or British Guiana. Schomberg first sent it as a curious fungus which he usually found as cups full of water, hence Berkeley named it as above. It was well-figured at the time. Later Spruce sent ample specimens (Fig. 548) that had a curious, dendroid growth on the inner face. Berkeley labeled it "Stereum nitis Avis Spruce," but when he published and figured it he referred it to Stereum hydrophorum, and no doubt correctly. There are no traces of this growth on most specimens in the museums, and why it should occur on some is not known

to me. All specimens known of Stereum cristatum (cfr. in Section 9) have a somewhat similar growth. Hennings discovered that Stereum hydrophorum was a "new species" of Hymenochaete (sic). The discovery is chiefly noteworthy from the fact that it was neither a "new species" nor a "Hymenochaete."

STEREUM HOLLANDII (Fig. 549).—Pileus infundibuliform with a very short stem. Inner surface uniform, brown, pubescent with narrow, raised, concentric zones. Hymenium smooth, yellowish brown. Cystidia, none.

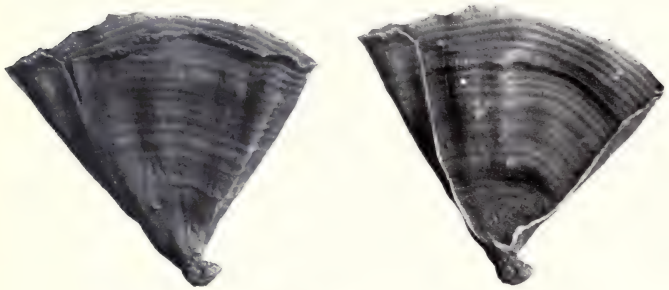

Fig 549

Stereum Hollandii.

This is known from a single specimen (and figure) at Kew, found in the cyathiforme cover and collected in Old Calabar, Africa, by J. H. Holland. It approximates to some extent Stereum hydrophorum of the American tropics, but the hymenium is glabrous and the hyphæ tissues are pale.

Stereum cristatum will be found in Section 9 as the type specimens are petaloid. Some of the cotype specimens at the British Museum are eccentric, with a tendency toward infundibuliform. I presume the plant when perfectly formed is infundibuliform and belongs in this section. But one collection known (Ravenel) from Southern United States.

Stereum obliquum. Most of Zollinger's collections, No. 983, are petaloid, as shown in our figure in Section 9. A few I have seen (at British Museum) like cristatum show a tendency toward infundibuliform and might be sought in this section. I believe Stereum obliquum to be same species as Stereum affine, but a more slender form. Stereum affine also rarely takes infundibuliform shape.

SYNONYMS.

Hymenochaete (sic) crateriformis, Brazil, Hennings = Stereum hydrophorum.

Stereum cyathiforme, South America, Fries. This is more a tradition than anything else. I do not suppose any type exists, and Plumier's old crude figure which Fries cites does not represent anything that grows nowadays. The probabilities are that cyathiforme was hydrophorum or caperatum, though the crude figure Fries cites has no resemblance to either. Berkeley referred three collections to Stereum cyathiforme, all of which are caperatum with short stipe and subeven hymenium (viz.: Stereum hylocrater).

SECTION 6.

Merismus. This section includes species that have several pilei proceeding from the branching of a common stem or root-stalk. This is the same sense in which it is used in the polyporoids. In the sense of Persoon as originally applied as a genus of Thelephoroids viz.: the encrusting species, it is a different idea.

STEREUM PALLIDUM (Fig. 551).—Pilei imbricate, multiplex, formed of various confluent lobes, irregular. Color rugose, faintly zoned when fresh. The upper surface striate fibrillose with long fibrils. Hymenium smooth, uneven. Cystidia, none. It grows in the earth, from a thick rooting system. Some collections are more simple and infundibuliform, and might be sought in Section 2.

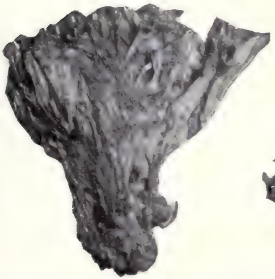

Fig. 550
Stereum pallidum.

Fig 551
Stereum petalodes.

This seems to be a rather frequent species in Europe, and has been badly confused. Persoon named it and figured it, and authentic specimens are still in his herbarium. He described it, unfortunately, as having setulose hymenium, which his specimens do not bear out nor are there any similar species known in Europe with that character. Fries compiled it in his Systema and confused it with Sowerby's figure of pannosum, hence in early exsiccatae it is usually called Thelephora pannosa (viz.: Desm. 412 & 797, Rabenhorst, 1805). When he first met it, Berkeley referred it to Stereum elegans, a tropical species. Afterwards he seems to have confused it with Sowerbyi, and finally named it as a new species, Thelephora multizonata. A recent Vienna exsiccatæ (318) has the species correctly referred to Persoon's name, which is the only correctly-named specimen I have seen at London. The Germans, however, have made good recent collections, and have mostly correctly referred it at Berlin. Quèlet referred the plant to Thelephora intybacea and then discovered that Thelephora intybacea (in the sense of Fries, at least) was a "new species," Thelephora atrocitrina.

ILLUSTRATIONS.—Persoon Icon, et Desc. t. 1, fig. 3. I am satisfied that this figure is misleading as to the usual plant, at least both as to the regular infundibuliform shape and the setulose hymenium as shown. Neither of these characters are borne out by the specimens still in Persoon's herbarium, nor by the usual plant as found in recent years.

I have a collection from France recently that seems to bear out Persoon's figure, and it is possible that the usual merismatoid plant of the museums (and of Persoon's herbarium) is not the same as the infundibuliform plant originally. It is a problem for the future.

STEREUM ACULEATUM.—Known from but one collection in Southern United States, is probably only the American expression of Stereum pallidum. While on comparison it appears more regular, thinner, with thin, eroded edges, yet it has same habits, fibrillose surface, color (darker, it seems), and is in the main the same plant. It is apparently extremely rare. But two specimens were ever collected by Ravenel—one is at Kew, the other in the British Museum.

STEREUM CONFUSUM.—Known from but one collection from New Zealand, is likewise probably only a form of Stereum pallidum. It has the same color and general characters, but the few specimens known are more simple and not surely merismatoid in habits.

STEREUM PETALODES (Fig. 551).—Pileus reddish brown, sessile, cut into lacerate lobes which appear merismatoid. As to surface and color, very much like the preceding. It is known from a single specimen from San Domingo. At first sight it appears as though consisting of separate, spathulate individuals, but is really one lacerated plant. It is therefore not "petaloid." Ule's distribution 2756 from Brazil of Henning's determination has not the most remote resemblance to it (cfr. Stereum crenatum).

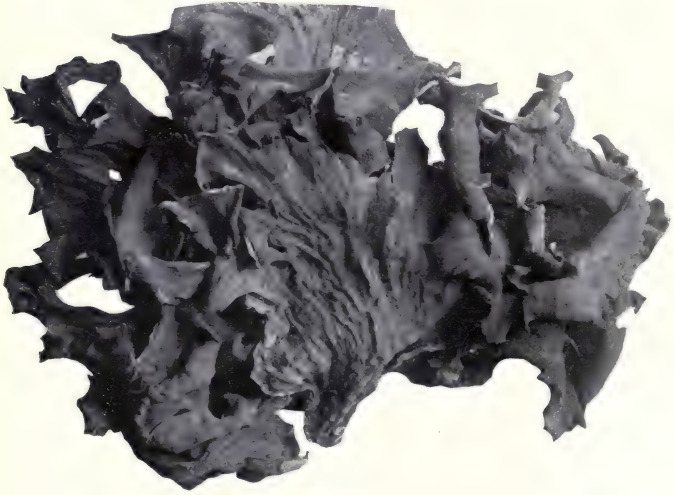

Fig. 552
Stereum laminosum.

The following two plants are more fleshy in texture than the usual Stereum, and have been generally classed as Sparassis. The genus Sparassis, however, is defined as having the "hymenium amphigenous," which does not apply to either species. They are intermediate between Stereum and Sparassis, agreeing with the former in the position of the hymenium and the latter in general habits and texture. Compare article by A. D. Cotton in Trans. British Myc. Soc., Vol. 3, p. 333, where it is shown that the hymenium of Sparassis crispus is only partially amphigenous.

STEREUM SPATHULATUM.—A merismatoid plant, rather frequent in our Eastern United States, that has generally been considered as Sparassis, and often confused with Sparassis crispa. Sparassis crispa is truly a fleshy plant, and this plant, while having the general appearance of a Sparassis, has the texture of a Stereum, and I believe is better so classed. In Europe, however, the very analogous, and possibly same species, Stereum laminosum has usually been classed as Sparassis.

STEREUM LAMINOSUM (Fig. 552).—This plant of Europe is very close to Stereum spathulatum of the United States, and is probably same thing. It grows merismatoid from a thick, root stalk. It was classed by Fries as Sparassis, though the hymenium, in the main at least, covers but one side of the pileus, which would make it a Stereum even under Fries' definition. It appears to be a rather rare species in Europe, but has been found lately in England, and a photograph contrasting it with Sparassis crispa can be found in Swanton's book. In my belief this was Thelephora frondosa of Persoon, a specimen of which is still in his herbarium. Also it is included in Fries' Hym. Europaei, I think, as Sparassis laminosa and Sparassis foliacea (p. 666) and (possibly) Stereum speciosum (p. 638).

SYNONYMS.

Sparassis foliacea, France, St. Amans (as Clavaria), generally referred from the picture to laminosa. Dufour states it is not infrequent in pine woods of France, and that when fresh it is fleshy as a Clavaria.

Sparassis Herbstii, United States, Peck = Stereum spathulatum.

Sparassis laminosa, Europe, Fries. Better classed, I think, as a Stereum, but in its general habits of growth and appearance it is much closer to Sparassis than to any other Stereum of Europe. It would naturally be sought in Sparassis in Europe.

Stereum Carolinensis, United States, Cooke = Stereum spathulatum.

Stereum gausapatum, Southern Europe, Fries. Fries states he knew the plant only from a collection from Angiers, France, by Guepin. I did not find a type in his herbarium. Lately the name has been much used for the plant that Fries and mycologists in general call Stereum spadiceum. I have always doubted the correctness of it, for it seems strange that Fries who knew so well Stereum spadiceum in the woods of Sweden should not have recognized it when he received it from a correspondent. Besides, it is misleading to write "Fries" after this name, when Fries knew the plant well in the fresh state and always called it, when he found it fresh, Stereum spadiceum, and always so named it in his publications. I recently found in Montagne's herbarium what is evidently a cotype of Stereum gausapatum, and I believe it is the only one that exists. I must now concede that it is probably Stereum spadiceum, but I do not feel at all content to abandon the name Stereum spadiceum in the sense in which it has been used for nearly a century by most mycologists, and concerning the identity of which there is no possible question, because Fries on one single occasion did not recognize a dried specimen from a correspondent and misconceived it as being merismatoid. It seems to me as putting too heavy a penalty on Fries for a single mistake. Besides it is contrary to "Law" and leads to nothing but confusion.

If mycologists are so particular to get everything exactly historically and "priorly" right, they should consider Stereum spadiceum as being Stereum tabacinum as named and illustrated (poorly) by Sowerby, so stated by Berkeley and so interpreted by Persoon. While the figure is much too-brightly colored, it should be recognized in connection with Sowerby's remarks, "exuding red drops." There is no question in my mind that Stereum tabacinum (strictly correct) is Stereum spadiceum of Fries, and mycologists in general; but I have no intention to propose a juggle at this late date. The name Stereum tabacinum is too firmly fixed to another plant, even if not historically correct. Persoon had it right as evidenced by specimens still in his herbarium.

Stereum speciosum, Italy, Fries, based on a drawing sent to Fries by Inzenga and in his collection of drawings at Upsala. I thought when I saw it that it represented Stereum laminosum, but it must be admitted that Inzenga's published figure (if the same) has very little resemblance to this species and is probably an immature Polyporus.

Thelephora craspidia, Mexico, Fries. There is a little cotype frustule at Kew. It is quite close, probably same as Stereum pallidum.

Thelephora frondosa, Europe, Persoon. Specimen in his herbarium is the same, I think, as Stereum laminosum. If the "rights of priority" were not forbidden by "law" as far as concerns poor old Persoon (which is certainly a most unjust "law," though enacted probably in good faith in a futile attempt to head off cheap name-jugglers), the following species in our "legalized" standard would all be referred to "Stereum frondosum, Persoon;" Sparassis laminosa (p. 666), Sparassis foliacea (p. 666), and Stereum speciosum (p. 638).

Thelephora intybacea, sense of Quèlet not Fries, is Stereum pallidum. Intybacea in sense of Fries is a Thelephora, not a Stereum, that grows in frondose woods only and occurs on the campus at Upsala. It is for me Thelephora mollissima in the sense of Persoon. The only good specimen of it I have noted is in Montagne's herbarium at Paris. There is a poor one in Persoon's herbarium.

Thelephora multizonata, England, Berkeley = Stereum pallidum.

Thelephora pannosa, England, Sowerby, was afterwards changed through an error to Thelephora Sowerbyi and, when the error was discovered, was never corrected. In Fries' early works it was confused with Stereum pallidum. The early exsiccatæ of Stereum pallidum are mostly misdetermined as Thelephora pannosa.

SECTION 7.

Clavarioides. Pileus cut into narrow, lacerate segments, somewhat resembling a Clavaria, but having the hymenium only on one side of the narrow segments. But three species known from the tropics. They are all more fleshy than the usual Stereums.

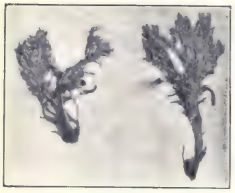

Fig. 553
Stereum Hartmanni.

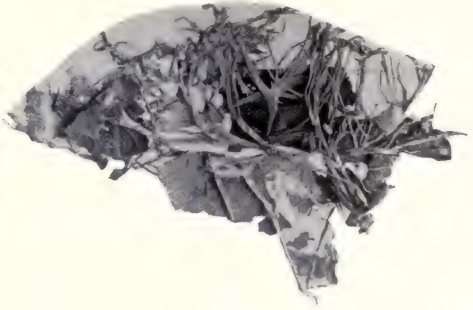

Fig. 554
Stereum proliferum.

STEREUM HARTMANNI (Fig. 553).—Pileus white, spathulate, cut into narrow segments, the ultimate divisions incurved and pectinate. Hymenium on the lower side only.

This elegant little species reached Montagne from "Carolina" about seventy years ago, but must be most wonderfully rare, as it was never found again in Southern United States by either Ravenel or Curtis, who were close collectors in the same region for a number of years. While never found again in the United States, it occurs in West Indies, and the best specimens in the museum were recently distributed by N. L. Britton, collected in St. Kitts.

STEREUM PROLIFERUM (Fig. 554).—Erect, branched, white. The branches are dilated above, and radiately lobed at the

ends, resembling an Umbelliferous inflorescence. Hymenium on lower surface, even, white.

This curious species is known only from the original collection, Spruce, Brazil.

STEREUM ANASTOMOSANS.—Caespitose, the numerous pilei dissected into narrow lobes, having much the appearance of a Clavaria. Color reddish brown. Spores (abundant) are globose, hyaline, smooth, 4 mic.

This specimen only known from Wright's collection, Cuba. It seems to have grown on branches.

SYNONYMS.

Thelephora dissecta, Guadalupe, Léveillé = Stereum Hartmanni.
Thelephora Harthmanni in Saccardo, misspelling of specific name of Stereum Hartmanni.

SECTION 8.

Erect, dendroid, with the form of a Clavaria. Hymenium amphigenous. There are several species of Thelephora that belong in a similar section, but only one known Stereum, and that one known from a single specimen. Other species formerly classed as Thelephora have cruciately divided basidia and are now classed either as a section of Sebacina or as a genus, Tremellodendron.

STEREUM UNICUM (Fig. 555).—Pileus erect, dendroid, with flattened branches. Color ferruginous, uniform. Surface velutinate with soft, projecting, colored hyphæ. Spores unknown, doubtless white.

Fig 555

This species is only known from a single specimen in the museum at Albany, collected in New York thirty-five years ago. Professor Peck recently told me that he never found but this single specimen, and no one else has ever met it. It has the color of the section Hymenochaete, but the setæ are of a different type entirely. Professor Peck (30th Report) referred it to Thelephora speciosa, now classed in the section Hymenochaete (see page 41), but the plant has but little analogy to this plant of the American tropics.

SECTION 9.

Petaloides. Pileus spathulate, reduced to a stipe or stipe-like base. Stem lateral. (Species that are usually infundibuliform, but take petaloid shapes, also are classed in preceding section.)

STEREUM CYPHELLOIDES.—Very small (less than a cm.), white, spathulate, smooth, reduced to a stipe-like base. Known at Kew only from the types Cuba, but I have a collection from H. Perrier de la Bathie, from Madagascar, that seems on comparison to be the same. Notwithstanding its small size, it is an obvious Stereum as to thickness and texture.

STEREUM MINIMUM (Fig. 556).—Very small, 4-6 mic., white, petaloid, to a reduced base. Surface minutely tomentose. Hymenium uneven with ridges.

This is a little English species collected scantily in Scotland on birch. On account of the ribbed hymenium, it was put in Cladoderris, which is a tropical genus and does not occur in temperate regions. It has only the faintest suggestion of Cladoderris, and there is no warrant for so classing it. Stevenson, British Fungi, has a cut on page 266 (reproduced, Fig. 556).

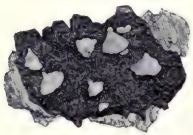

Fig. 556
Stereum minimum.

Fig. 557
Stereum quisquiliare.

STEREUM QUISQUILIARE (Fig. 557).—Also a very small, white, spathulate species known only from types Cuba. It is thinner, more stipitate, and evidently of more fleshy texture than the preceding. There are only four little specimens, and one of them seems to be infundibuliform. The other three are spathulate.

STEREUM ALBOSTIPATUM.—Pileus, when fresh, white, somewhat hygrophanous, as it is "whiter" white when dry. Smooth, both surfaces, very thin, the margin often fimbriate. Stipe lateral, white, tomentose.

This species I found in Samoa, but were it not for my collecting notes I would not have known that it was white. The specimens now are brown. It grew gregariously on logs and stumps. Rarely, when growing in an erect position, the specimens were cup-shape, but I noted very few such. On comparison, I thought at first it was the same as Stereum decolorans from Cuba at Kew, but I note that the stem is more slender, its habits of growth are different (not imbricate), and the base of decolorans has no tomentose thickening.

STEREUM DECOLORANS.—Thin, smooth, spathulate to a reduced base or short lateral stipe. Color supposed to have been "white, drying ochraceous," but the specimens now are brown, and there are no collector's notes to indicate that they were ever white. They may have been. The plant grew evidently densely imbricate, caespitose. It is known only from the types at Kew.

STEREUM VENUSTULUM.—Very thin, with crenate edges, petaloid, with a short but distinct stipe. Color (now) reddish-brown bay. Glabrous even, the hymenium pruinose.

This is known from Balansa, 3354, cotype. The collector's notes state "couleur blanche," but no one would suspect it now. It grew on rotten wood. This plant is

quite close, perhaps the same as Stereum decolorans, but I judge it differs in its habits of growth (not caespitose).

STEREUM FISSUM (bis) (Hennings as Thelephora).—Known only from the type Brazil. It is same as Stereum decolorans in all characters excepting it is cut into segments. In my opinion, only a form of Stereum decolorans. It probably, however, did not grow caespitose as does evidently the type of Stereum decolorans.

STEREUM GLABRESCENS (Fig. 558).—Pileus reddish-bay brown, spathulate, tapering to a distinct stipe, smooth, sometimes faintly zonate.

This species is known from a few collections, Brazil. The color is much like Polystictus xanthopus. It is quite firm and a typical Stereum as to texture.

Fig. 558
Stereum glabrescens

Fig. 559
Stereum fissum.

Fig. 560
Stereum glabrum.

STEREUM MOELLERI.—Spathulate or petaloid, tapering to a stem-like base. Surface smooth, minutely silky, even, *dark*, blackish, faintly zoned. Hymenium even, pale, almost white or slightly cinereous when old, contrasting with the dark upper surface. Cystidia, none.

This is known only from Brazil. Types are at Berlin, also cotype in British Museum.

STEREUM FISSUM (Fig. 559).—Pileus cuneiform or spathulate. Sometimes entire, but generally cut into cuneate segments, tapering to a short base, smooth, reddish brown. The hyphæ are pale color. The plant was said to be "white when fresh, turning yellowish." It is known from the types at Kew, from Brazil, which

were confused by Cooke with the next species and put on the same sheet. Recent collections have been distributed by Ule under Henning's misdetermination as Stereum Huberianum.

STEREUM GLABRUM (Fig. 560).—Pileus spathulate to a reduced base, entire or cut into cuneate segments. Smooth, reddish brown. Hyphæ are deeply colored.

This is a species of the Philippines and the East quite similar in shape and appearance to Stereum fissum of the American tropics, but differs in the color of the context and hyphæ. It was originally named from Java (Zoll. No. 16), and a cotype is at Berlin. Berkeley called it also, from Ceylon, Stereum partitum, and Cooke got it from Malay and discovered it to be a "new species" of "Guepinia" (sic). There are but three collections in the museums, each with a different name.

STEREUM CRISTATUM.—Small (1-1½ cm.), petaloid, light bay-brown, tapering to the base. Hymenium smooth, even, paler than upper surface. The entire plant is glabrous, excepting it has near the base on the upper side curious, coarse, crested growth, possibly not always developed, but present in all known specimens. It is only known from Curtis and Ravenel's (scanty) collections. Those at Kew (type) are petaloid with lateral, short stem. Those in the British Museum (Ravenel's) have a tendency to be infundibuliform, and this is probably the true shape of the plant when perfectly developed.

Fig. 561
Stereum affine.

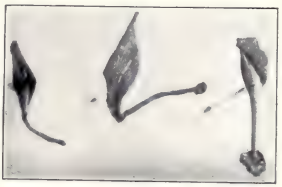

Fig. 562
Stereum obliquum.

STEREUM AFFINE (Fig. 561).—Pileus petaloid, dark reddish-bay color, glabrous, faintly zoned. Stipe tomentose.

This species is quite frequent in the museums, and is mostly misreferred to Stereum elegans. It grows on wood, and is attached

by a small, tomentose pad. As to color and habits, it is quite the same as Stereum surinamense, but very rarely has a disposition to take infundibuliform shapes. I think it is entirely distinct but only in shape. The types (three specimens) are in box 102 at Leiden. At Paris are two specimens under the same label by Léveillé. One of them is the same as the type at Leiden, the other is Stereum Mellisii, a very different plant. This confusion by Léveillé has led to recent errors in the naming of Philippine plants.

SPECIMENS.—A fine collection from Dr. Zenker, Congo, Africa. This same plant from Dr. Zenker was sent to Hennings, who referred it to "Thelephora cfr. aurantiaca Berk." and was distributed by Dr. Zenker under this name, and found in several museums. This same collection is said to be the basis of "Thelephora Amigenatska Henn." which is not now represented at Berlin in the cover.

STEREUM MALABARENSE.—A probable form of the preceding plant, but very thin, and with incised, fimbriate margin, was received in abundance by Cooke from Malabar and referred to Stereum elegans, to which it hardly has an analogy. This Malabar collection seems to have grown in the earth.

STEREUM FLABELLATUM.—This is for me a form of Stereum affine, having all the characters of the type form, but often lobed and the surface *strongly striate*. It is only known from the collection of Duss in Guadalupe. Cotype specimens are found in the museum at Berlin. According to the collector's notes it is pale when fresh, but the dried specimens are dark reddish-bay color.

STEREUM OBLIQUUM (Fig. 562).—Pileus reddish-brown (now), narrowly lanceolate, acute, with a slender, lateral stem. Smooth, striate.

This was based on Zollinger's exsiccatæ No. 983, and the set is found in several museums. Our figures are from those in Kew. In the British Museum the specimens of the same number are not lateral, but have an oblique attachment, and tend to infundibuliform. There is at Kew a similar collection from Australia, but otherwise only known from the original Zollinger collections. The Zollinger distribution at Kew, British Museum, Leiden, and Montagne's herbarium (type) are all the same, but I think the one at Berlin is different. Excepting as to its long stalk and very narrow form, Stereum obliquum has all the characters of Stereum affine and for me is only a form.

SYNONYMS.

Guepinia (sic) flabellata, Malay, Cooke = Stereum glabrum.

Stereum Huberianum, Brazil, Hennings, distributed Ule 42 is Stereum fissum, entire specimens.

Stereum pallens, Brazil, Karsten. There is a single little cotype specimen at Paris. I take it to be the same as Stereum cyphelloides.

Stereum partitum, Ceylon, Berkeley = Stereum glabrum.

Stereum pusiolum, Cuba, Berkeley. A very small species known only from one collection from Cuba, and from this material it is not possible to say that it differs from Stereum cyphelloides.

Stereum spathulatum (bis), Brazil, Berkeley = Stereum glabrescens.

Thelephora Amigenatska, Africa, Hennings. There is no type in the cover at Berlin now. Zenker's collection (1996) found in several museums as "Thelephora cfr. aurantiaca Berk." is said to be same, as it no doubt is from the description. It is Stereum affine. As Berkeley never named any specimen "Thelephora aurantiaca," it would be quite difficult to make the comparison as requested on the label.

Thelephora Uleana, Brazil, Hennings, I judge from my notes is same as Stereum quisquiliare. The type has an endorsement on it that it is a Cyphella, but I can not see on what grounds.

SECTION 10.

Petaloides, velutinate, hirsute (smooth in one species). Pileus flabelliform or spathulate, sessile, attached by a reduced base. As these plants do not have stipes, but are merely reduced at the base, they should not be placed in the "stipitate" section, perhaps rather in the Apus section. But they are never truly dimidiate, hence intermediate between the two sections. Several species normally dimidiate, as Stereum lobatum and Stereum fasciatum often have similar attachment, and might be sought here.

Fig. 563
Stereum involutum.

STEREUM INVOLUTUM (Lloydella) (Fig. 563).—Pileus spathulate, or suborbicular, attached by a reduced base. Upper surface brown, velutinate with narrow, concentric zones. Hymenium smooth, reddish-bay with a waxy appearance. A section shows a thick (90 mic.), compact, even hymenial layer, very distinct from subhymenial layer, which is much lighter color. There are a few typical metuloids, thick, hyaline, rough, projecting but little. (Hence it is a Lloydella).

Stereum involutum was named by Klotzsch (as Thelephora) from Mauritius. It appears to be not infrequent in Africa, Australia, and the Pacific Islands. It has a peculiar, hymenial appearance which may be recognized at sight when once learned. The two following, with the same hymenium, differ as to upper surface, but for me are only forms.

STEREUM PROXIMUM.—I made one collection in Samoa which I am convinced is a form of Stereum involutum, although I have found no metuloids. Otherwise it is quite the same as to peculiar, waxy, thick hymenium, color, attachment, etc. The upper surface is more finely velutinate.

STEREUM BRESADOLEANUM.—Pileus orbicular, spathulate, attached by a reduced base. Upper surface dark brown, smooth, with narrow zones. Hymenium smooth, reddish bay, with a waxy appearance. Same metuloids and structure as Stereum involutum.

There are collections of this plant from Africa at Berlin, also at Paris, referred by Bresadola to Stereum bellum "cum typo comparatum." There must be some confusion as to the type of the latter plant. The type of Stereum bellum is Kunze exsiccatæ, collected at Madeira by Holt, on trunks of Laurus. It is for me the same as Stereum versicolor in its true sense, with little resemblance to this plant. There are two examples of this exsiccatæ at Paris. One in Desmaziere's herbarium, the other in Montagne's. As the pileus of Stereum Bresadoleanum is smooth, it really does not come in this section, but we include it on account of its evidently close relationship to Stereum involutum.

SYNONYMS.

Stereum bellum in sense of Bresadola not Kunze is Stereum Bresadoleanum.

Stereum phalanarum, Australia, Kalchbrenner = Stereum involutum.

Stereum prolificans, Queensland, Berkeley. Exactly same as vespilloneum and also involutum for me.

Stereum vespilloneum, Aru. Islands, Berkeley. I am sure is the same as involutum. Same peculiar structure. The form is more orbicular, hymenium deeper red, zones are more distinct, but it can not be held as a distinct species.

SECTION 11. HYMENOCHAETE.

The section Hymenochaete, which is held by many to be a distinct genus, is based on one character only, viz.: deeply colored, rigid, sharp setæ that are formed on the hymenium. These setæ, not projecting over 60-100 mic. from the surface, are microscopic objects, but fungi of this section may be recognized by the eye by the color and velvety appearance of the hymenium. We feel it is illogical to base a genus in Thelephoraceae on these setæ alone, when exactly the same setæ occur on most other fungi—Agarics, Polyporii, Hydnoids, etc.—and in no other class of fungi genera are they held to be of even sectional importance. If these setæ make a genus in Thelephoraceae, so should they also in Polyporaceae, etc. We might concede the use of the name as a convenient division of resupinate species, but the old pileate Stereums with these microscopic setæ are best called Stereum, as they were originally.

There are several species of this section among the sessile species of Stereum, but really only one known in the stipitate section.

STEREUM DAMAECORNE (Fig. 564).—The entire plant, including context, is bright bay-brown. It has a stem varying from two to six inches long, which is brown, tomentose. The pileus is most variable as to shape, and hardly two collections are the same. Sometimes the stem is simple and bears a single regular pileus. Rarely it is infundibuliform. At other times it divides and bears several pilei. The shape is more or less reniform, but it varies from simple, regular, entire to crenate, deeply lobed, or in the more complex form it becomes pinnatifid or imbricate.

The hymenium is concolorous and velutinate to the eye, caused by densely colored, rigid, slender setæ, projecting 60-100 mic.

FORMS.—The species based on shape have not even value as forms. They are only individuals. Stereum reniformis is the simple form. Hymenochaete Schomburgkii is the pinnatifid form. Stereum elevatum is the cup-shaped form. Hymenochaete formosa is the frondose form.

Fig. 564

Stereum damaecorne.

HISTORY.—This is one of the first species named by Link from Brazil. He spelled it Stereum damicorne, changed by Fries to Stereum damaecorne, which means a deer horn and seems to be pidgin Latin for Stereum damaecorneum. It is a very common plant in tropical America, and abundant specimens, all shapes and forms, are in the museums.

SYNONYMS.

The following are all mere form-names for collections of Stereum damaecorne.

Hymenochaete formosa, West Indies, Léveillé. Simply a frondose, imbricate form of Stereum damaecorne. It is only known from the types at Paris from Guadalupe.

Stereum reniforme, Brazil, Fries. The simple form.

Hymenochaete Schomburgkii, Brazil, Hennings. The pinnatifid form.

Stereum elevatum, Brazil, Berkeley = the cup-shaped form. It has abundant setæ, though was not put in the genus "Hymenochaete" by Cooke, hence still passes in Saccardo as a simple Stereum, devoid of setæ.

Stereum speciosum, Brazil, Fries. Not known to me authoritatively, but from Montagne's determination (no doubt correct) it is only a lobed form of Stereum reniforme (viz.: damaecorne). The only United States record (Peck) has no resemblance to it (cfr. Stereum unicum, p. 35).

SYNONYMS, MISTAKES, BLUNDERS, ETC.

"Cladoderis
australica, Berkeley, Herb" 28

Guepinia (sic)
flabellata, Cooke 39

Hymenochaeta
crateriformis Hennings..... 30
formosa, Leveille 42
Schomburgkii, Hennings..... 42

Sparassis
foliacea, St. Amans 23
Herbstii, Peck..... 33
laminosa, Fries..... 33

Stereum
alutaceum, Cooke..... 23
bellum, Bresadola..... 41
Carolinensis, Cooke..... 33
cartilagineum, Fries..... 23
curtum, Fries 28
cyathiforme, Fries..... 30
cyathoides, Hennings..... 28
elevatum, Berkeley..... 42
fulvo-nitens, Berkeley..... 28
gausapatum, Fries..... 33
Golias, Spegazzini..... 19
Huberianum, Hennings..... 39
infundibuliforme, Hooker..... 19
Junghuhnii, Fries..... 28
macrorrhizum, Leveille..... 28
modestum, Kalchbrenner..... 28
Moselei, Berkeley..... 28
Moselei, Cooke..... 28
pallens, Karsten..... 39
pannosum, Sowerby..... 21
partitum, Berkeley..... 39
phalanarum, Kalchbrenner.... 41

Sterum—Continued.
prolificans, Berkeley 41
pusillum, Berkeley..... 26
pusiolum, Berkeley 39
reniforme, Fries 42
rivulosum, Berkeley..... 21
spathulatum (bis), Berkeley... 39
speciosum, Fries.....33, 42
tenerrimum, Berkeley..... 21
Traillii, Cooke..... 28
Tuba, Berkeley..... 21
vespilloneum, Berkeley..... 41
xanthellum, Cooke..... 23

Thelephora
affinis, Berkeley..... 23
Amigenatska, Hennings..... 39
craspidia, Fries..... 34
dissecta, Leveille..... 35
exigua, Peck..... 21
frondosa, Persoon..... 34
Harknessii, Harkness 21
Harthmanni, Saccardo 35
intybacea, Quelet..... 34
Komobensis, Hennings..... 21
liliputiana, Montagne..... 21
multizonata, Berkeley..... 34
pannosa, Sowerby 34
paradoxa, Leveille..... 28
rosella, Peck..... 21
sericella, Berkeley 23
spectabilis, Leveille..... 23
striata, Junghuhn 28
Suilivantii, Montagne..... 21
tuberosa, Persoon..... 23
Uleana, Hennings..... 39
Willeyi, Peck..... 21

Stereum aculeatum, Berkeley 32
" affine, Leveille 38
" albostipatum, Lloyd 36
" anastomosans, Berkeley 35
" aurantiacum, Persoon 22
" Bolleanum, Montagne 26
" Bresadoleanum, Lloyd 41
" Burtianum, Peck 21
" caperatum, Montagne 17
" confusum, Berkeley 32
" crenatum, Leveille, ... 24
" cristatum, Berkeley 38
" cyphelloides, Berkeley 35
" damaecorne, Link, ... 41
" decolorans, Berkeley 36
" diaphanum, Schweinitz 19
" elegans, Meyer 24
" fissum, Berkeley 37
" fissum (bis), Hennings 37
" flabellatum, Patouillard 39
" floriforme, Bresadola 24
" glabrescens, Berkeley 37
" glabrum, Leveille 38
" Harmandi, Patouillard 22
" Hartmanni, Montagne 34
" Hollandii, Lloyd 30
" hydrophorum, Berkeley 29
" hylocrater, Spagazzini 18
" involutum, Klotzsch 40
" laminosum, Fries 33
" malabarense, Cooke 39
" Mellisii, Berkeley 28
" minimum, Berkeley 36
" Miquelianum, Montagne 27
" Moelleri, Bresadola, ... 37
" nitidulum, Berkeley 25
" obliquum, Montagne 39
" pallidum, Persoon 31
" pergameneum, Berkeley 27
" petalodes, Berkeley 32
" proliferum, Berkeley 34
" proximum, Lloyd 40
" quisquiliare, Berkeley 36
" Ravenelii, Berkeley 25
" Sowerbyi, Berkeley 20
" spongiaepes, Berkeley 19
" spathulatum, Schweinitz 33
" surinamense, Leveille 26
" Thozetti, Berkeley 21
" undulatum, Fries 20
" unicum, Lloyd 35
" venustulum, Spegazzini 36

SYNOPSIS

OF THE

GENUS FOMES

By

C. G. LLOYD.

CINCINNATI, OHIO, . JANUARY, 1915.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

REV. H. BOURDOT

who is in Europe to-day the leading authority on resupinate fungi, and has written the best and only exhaustive systematic account of those occurring in France. I am indebted to him for the determination of my Swedish resupinate specimens, and I beg to dedicate this pamphlet in appreciation of the many kindnesses received from him.—C. G. L.

THE GENUS FOMES.

As defined in Saccardo, the genus Fomes embraces the pileate species with pores, which are perennial, forming successive strata of pores each year. In this sense it is a very easily-recognized and natural collection of plants. We would restrict it to this definition. Fomes are easily known, being mostly hard, woody species that persist for years on trunks of trees. A few of the perennial, hard species (Trametes pini and Trametes odorata as usually known) were not included in Fomes because the pores were not supposed to be in strata. This is a mistake for the pores are in as distinct strata as any species of Fomes. We have included them as Fomes species in the addendum.

There is another section of polyporoids that might be sought in Fomes, but which is not included. These are the perennial, resupinate species with strata of pores. As these also would be included in Poria, taking the simplest definition of this genus, viz., "resupinate Polyporus," we think it better to so classify them. A plant that is usually a Poria will rarely form a pileus. We know two such in Sweden, but we include them in Poria, as we feel that species should be classified according to their usual form.

In temperate regions there is usually no trouble whatever in distinguishing a Fomes from a Polyporus, the Fomes being the hard, subwoody, perennial species, the Polyporus the soft, fleshy, annual species, but in the tropics some species of Polyporus, as Polyporus gilvus, sometimes take perennial forms. Also there are species of Polyporus in the temperate regions, as Polyporus dryadeus, which when old become hardened and indurated, but that does not make them Fomes.

Although Fomes is usually such a simple and easily-recognized genus, there are in our "literature" perhaps more species that are wrongly classed as Fomes than of any other genus. This is due to careless work on the part of those who first arranged the species, and largely to Cooke, who made the first general compilation, which was followed by Saccardo. I doubt if a single one of the first sixty-one species found in Saccardo belongs in the genus according to the definition that Saccardo gives, but this was fully considered in our pamphlet on the Stipitate species.

Fomes are mostly sessile plants, for naturally plants that persist for several years must have a firm attachment to the host. Some species, such as Fomes applanatus, normally sessile, may develop stipe-like bases growing under unusual conditions. A few species (cfr. Section 75) in the tropics have a natural tendency to form a stipe. The tissue or context, as it is called, of most Fomes is hard and subwoody, a few species, such as Fomes Laricis, Fomes perlevis, Fomes floccosus have soft, friable or spongy tissue. Where measurements are given in this pamphlet as the size of a species, it is of course our intention to convey only a general idea.

In shape, Fomes are divided into those with ungulate or hoof shapes, and applanate or relatively thin shapes. The general shape is usually characteristic of the species. Thus, Fomes applanatus, as its name implies, is generally flat and relatively thin, but sometimes ungulate specimens occur. I think the position of growth in relation to the host has something to do with it. Thus in France, where I noted Fomes fomentarius growing abundantly on the standing beech trees, the shape was ungulate, but when it developed on a fallen trunk I found it more thin and applanate. As a usual thing, Fomes grow on standing trees, and hence are usually ungulate.

The general color of the context is the most constant feature of the species of Fomes, and has been used as a basis for grouping the species in most works. The color may vary a few shades in the same species, but usually the context color is the best single character that a species has. In designating the color, we have

matched it in Ridgway's Standard and used his terms. Wherever a definite color term is used in this work, as "Sudan Brown," the term is taken from Ridgway. Due allowance, however, must be made for slight difference in color of specimens, which may vary through two or three shades of Ridgway, and particularly for my personal error, for I am not expert at matching colors. The use of definite color terms will be nearer the truth, even if not strictly accurate, than the prevailing custom of employing such terms as "brown," "ferrugineous," etc. The larger part of the species of Fomes have context color of some shade of brown. For convenience, we have endeavored to arrange them into light brown and dark brown subsections, but too much dependence must not be placed on it, for I doubt if the line of division is definite enough to be practical.

The use of the microscope in the determinations of species and relations of species to each other is a recent introduction. The older mycologists judged species only on their general resemblance, and they were often badly mistaken. The microscope shows some marked and constant characters, as the color and shape of the spores, the presence or absence of setæ on the hymenium, and in a few instances special structural characters, as the large, colored, bristle-like hyphæ imbedded in the tissue of Fomes pachyphlœus (see page 261, figure 600).

The spores are mostly hyaline, but many species, usually with brown tissue, have colored spores, and those of the section Ganodermus have the peculiar, truncate spores of this section. Species with colored spores nearly always retain their spores in abundance in the dried specimen. It is often difficult to find spores in dried specimens of species with hyaline spores, and errors are liable to be made in examining them. The spore records of this pamphlet are as I have found them, excepting in a few instances. The size of the spores as recorded is not intended as absolute, for spores vary in size on the same slide. I usually pick out a spore that I think is perfect and of the largest size and measure it.

This pamphlet was written at Kew, and when I was unable to find spores, Miss Wakefield, who is more expert with the microscope than I, kindly hunted for them and sometimes found them, and such are recorded on her observations and marked (W.). In a few cases, marked (B.), the measurements are taken from Bresadola's record.

The presence or absence of colored setæ on the hymenium is a strong, though I think not invariable, character of species, but, like all classes of fungi, it is restricted to those with brown context. As a usual thing setæ are easily found in those species that have setæ, but cases have been observed that throw doubt on its being an invariable character. There are a few species, such as Fomes connatus, that have large hyaline "cystidia" on the hymenium.

Basidia are rarely if ever found in the dried specimen, but some species have a sub-hymenial layer that persists and may be mistaken for spores. This latter is shown in figure 600, page 261. In many species, however, no indication of this structure can be found. The spores as found in Fomes specimens are supposed to be basidial spores, and in most cases no doubt are. Conidial spores, or spores borne direct on the hyphæ, are known in some species, and I suspect occur more frequently than supposed, for it is difficult for me to believe that the masses of spores found lining the tubes of some colored spore species are of basidial origin.

The Fomes of Europe and the United States are well known, and probably all species have been named. Also I feel sure, from the elaborate collections in the New York Botanical Gardens from tropical America, very few additional will ever be found from this region. The remainder of the world, particularly Australia, Africa, Japan is but scantily represented in the museums, and many will yet be added from these little-worked regions. Still I think all the common species of the world are named.

In preparing this pamphlet I have worked over the specimens in the principal museums of Europe and this country, including the fine collection in the New York Botanical Gardens, where is preserved the best collection of tropical American material in existence. In our own museum we have as many specimens in numbers, if not in variety, as are found in the other museums we have visited. Where specimens are cited, we refer to those in our museum. We extend our thanks to those who have aided us with specimens, and for the courtesies we have received in the various museums. This pamphlet was written at Kew, where the most of the historical specimens are preserved.

To Rev. Bresadola I am indebted for his determinations and opinions of a number of doubtful specimens, and to Miss E. M. Wakefield, at Kew, for the sketches that are used, as well as for various other helps in this work.

DIVISIONS OF THE GENUS FOMES.

We have divided the species into seven general divisions and sections as follows:

1st General Division, Pallidus. Context and pores pale, white, isabelline or pale yellowish, pale rose or cinnamon. Spores hyaline.

Section 55. Large. Context white, soft, friable..... p. 213.
" 56. Large. Context white, hard..... p. 214.
" 57. Small. Context white or isabelline..... p. 218.
" 58. Context pale yellow..... p. 219.
" 59. Context color isabelline. Context hard..... p. 220.
" 60. Context isabelline. Soft, punky..... p. 220.
" 61. Context pinkish cinnamon..... p. 220.
" 62. Context cinnamon..... p. 223.
" 63. Context pink or rose color..... p. 223.

2d General Division, Depallens. (As this section.)

Section 64. Pores darker than the context, usually fading out in old specimens..... p. 228.

3d General Division, Aurantiacus. Context orange rufous.

Section 65. Spores hyaline (or very pale colored)..... p. 231.
" 66. Spores colored..... p. 232.

4th General Division, Bicoloris. (As this section.)

Section 67. Section with bicolored tissue, the pores a dark brown, the flesh a light buff..... p. 232.

5th General Division, Funalis. (As this section.)

Section 68. Pileus with a thick pad of dense, brown hairs, analagous to section Funalis in Polystictus..... p. 233.

6th General Division, Fuscus. Context some shade of brown. Spores not truncate.

Section 69. Setæ, none. Spores hyaline..... p. 234.
" 70. Setæ present. Spores hyaline..... p. 241.
" 71. Setæ, none. Spores colored..... p. 248.
" 72. Setæ present. Spores colored..... p. 257.

7th General Division, Ganodermus. Context brown. Spores truncate.

Section 73. Fomes-Ganodermus. Pores with thin walls. p. 263.
" 74. Ponderosus-Fomes-Ganodermus. Pores with thick walls..... p. 269.
" 75. Stipitate Fomes of the Section Ganodermus.. p. 270.

FIRST GENERAL DIVISION—PALLIDUS.

Context and pores pale, white, isabelline or pale yellowish, pale rose or cinnamon. Spores hyaline.

SECTION 55. LARGE. CONTEXT WHITE, SOFT, FRIABLE.

FOMES LARICIS.—Pileus ungulate, when young with a thin, smooth crust, which soon becomes broken up into a rough surface. Flesh white, soft, friable, bitter to the taste. Pores minute, white with yellowish mouths. Spores (W.) 2½x4, elliptical, hyaline, apiculate, guttulate.

This differs from all other European species of Fomes in its soft flesh, hence is still found in Saccardo as a Polyporus. Notwithstanding its soft context, it is a typical Fomes, permanent, of slow growth, and with many annual pore layers, which, however, become indistinct. The plant occurs in Europe only on the Larch and only known from the Alpine regions. For years it has been employed in medicine as a laxative, and the crude drug is mostly exported from Trieste. In the United States it occurs on other acerose trees, and is rather rare. It is only reported from the North and Northwest, but I have a collection from the Northeast.

ILLUSTRATIONS.—Bulliard, 296, good; Jacquin, Vol. 1 t. 21, crude; other figures are largely in medical works.

SPECIMENS.—P. Hariot, from the Alps; Paul Dumée, Switzerland; L. W. Riddle, Massachusetts; C. V. Piper, Washington; Jas. L. Weir, Idaho.

Compare albogriseus, Aegerita, officinalis, purgans.

Fig. 570.
Fomes hornodermus

SECTION 56. LARGE. CONTEXT WHITE, HARD.

FOMES HORNODERMUS (Fig. 570).—Pileus mostly applanate, 1½x2 inches thick, rarely ungulate, with a very hard, black, smooth, usually sulcate crust. Context and pore tissue white when freshly cut, but on exposure to air turn fuliginous in spots, very hard, ligneous. Pores minute, hard, in layers.

This species is hard and heavy and the tissue is very finely grained. It is tropical, frequent in West Indies and other American tropics. Also occurs in Africa, Java, and the Philippines, though the eastern form differs slightly from the American form. The eastern form has more minute pores and harder context. Also, it takes ungulate forms. I have a specimen from New Zealand over a foot in diameter, and with more than 25 annual layers. At Kew is a large, ungulate specimen from Madagascar, with about fifty annual pore layers. I have a Madagascar collection with paler crust than usual.

SPECIMENS.—New Zealand, W. A. Scarfe (very large), R. S. Robinson (?); Mauritius, C. A. O'Connor; Madagascar, Henri Perrier de la Bathie; Brazil, Rev. Rick.

Compare hippopus, ligneus, sulcatus.

FOMES MARTIUS.—Pileus applanate, thin, 1-1½ cm. thick, with a hard, smooth, reddish brown or black crust. Context white, slightly punky, often tinged with orange shade directly under the crust. Pores very minute, hard, slightly isabelline.

This species is similar to Fomes hornodermus, but thinner, and context not so hard. The crust also varies from shades of reddish brown to black, and is often zonate. It was originally from Brazil, but there are a number of collections at New York (called Fomes subferreus in part) from Central America and West Indies. I have a collection from Australia.

SPECIMENS.—W. W. Froggatt, Australia.

FOMES OBESUS.—Pileus globose-ungulate, with mat surface, and thin, indistinct crust. Context and pores white, soft, ligneous, with many narrow pore layers 2 mm. wide.

This is based on a single specimen from Pacific Islands (Apataki) on a cocoanut tree. Type at Paris. I do not know if the narrow zones represent pore layers or zones of the context.

FOMES ROSEIPORUS.—Pileus applanate, with a thin, smooth, brown crust. Context white, with a faint pinkish tint. Pores minute, pale rose.

This was named from Java. The type is not at Paris museum. The above description is from a specimen at Kew recently collected in Java by v. Hoehnel.

FOMES SUBRESINOSUS (Fig. 571).—Pileus applanate, with a black, smooth, shiny crust. Context white, contrasting strongly with the black crust. Pores minute, slightly darker than the context. Spores globose, 4 mic. hyaline.

This is a frequent species in the East, Africa, Ceylon, India, Philippines, etc., and has been known for years. I found it named Fomes nigro-laccatus in the museums at Berlin and Paris, which was an error said to be based on determinations of Cooke. The records of nigro-laccatus, Patouillard p. 103, and Bresadola, Kamerunenses, p.

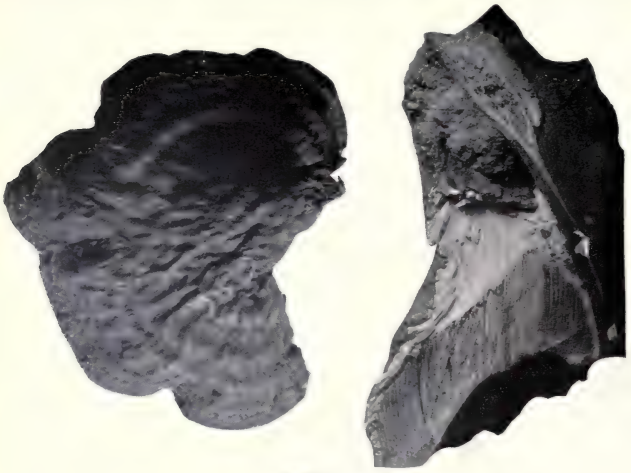

Fig. 571.
Fomes subresinosus

42, are based on this plant. At any rate, Murrill named it as above, and if he knew anything of its previous European history, he did not mention it. It is badly named, for it is not at all resinous.

SPECIMENS.—Some foreign country, M. Dumée; Tonkin, Mus. Paris; Ceylon, T. Petch.

FOMES CONNATUS.—Pileus usually imbricate, dimidiate, the surface white (or blackish with age), without a distinct crust. Context hard, ligneous, white. Pore layers ⅔ mm. long, very distinct, with a narrow layer of paler context between each annual layer. (See Fig. 572.) The color of pores is ochraceous, decidedly darker than the context. Pores minute, round. Spores globose, hyaline, smooth, guttulate, 5-6 mic. Hymenium with large capitate, hyaline cystidia.

Fomes connatus is a common species, both in Europe and America, and no doubt in other temperate countries. There should be no trouble in determining it, as it is the only Fomes with pale context that ever has the pore layers separated so distinctly. It grows on various frondose woods, preferably on maple, and I have usually collected it near the base of maple trees. Often it is covered with moss, as shown in Fries' Icones, and Boudiers' excellent figure. The tendency of recent writers is to call it Fomes populinus, but the name is not only uncertain, but, judging from the picture on which it is based (Fl. Dan. 1791), probably not true. Subresupinate forms of Fomes connatus have been misdetermined as being Poria obducens, and Poria obducens has been referred as a synonym on this basis. I think

the true Poria obducens is not a form of Fomes connatus. The cystidia with encrusted heads, about 10 mic. thick, are abundant over the hymenium.

ILLUSTRATIONS.—Three excellent illustrations have been given of it, Boudier, t. 1, Fries Icon. t. 185, and Gillet t. 465.

SPECIMENS.—Europe, many; United States, many; Japan, A. Yasuda.

Compare Meliae, oxyporus, populinus, Secretani.

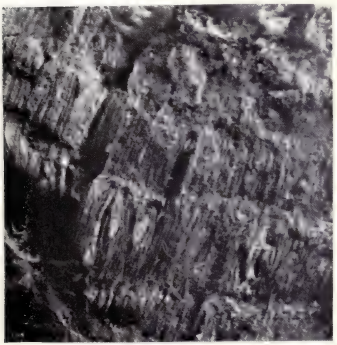

Fig. 572.
Pore strata of Fomes connatus X 6.

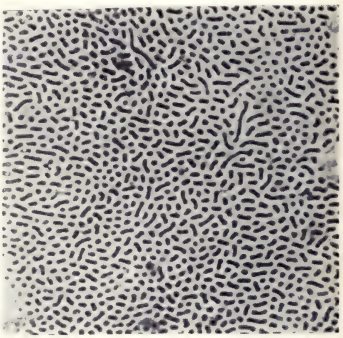

Fig. 573.
Pore mouths of Fomes annosus X 6.

FOMES ANNOSUS.—Pileus woody, usually thin, uneven, irregular, with smooth, brown crust. Context white or pale yellowish, drying yellowish, hard. Pores small, round, or elongated with thin walls. The annual pore layers form irregularly and separately over those of the previous year, and the tubes are not continuous, as in most other species of Fomes. Spores globose, hyaline, smooth, 4-5 mic.

This is a common species both in Europe and the United States. Usually on acerose wood. It rarely develops a perfect, regular pileus. Often it is subresupinate, forming irregular masses about the roots of acerose trees. I have rare collections from frondose wood.

ILLUSTRATIONS.—Brefeld, No. 8, t. 9 is so perfect it is not worth while citing others. This is miscited by Saccardo as being Fomas roburneus.

Compare irregularis, Gillotti, castaneus, contrarius, cryptarum, hypopolius, marginatus.

FOMES CUNEATUS.—Pileus narrow, ungulate, or wedge-shape, with rugulose, ridged, brown surface, hardly a distinct crust. Context white with a yellowish tinge, hard. Pores minute, white, with white mouths. Spores (?) globose, 3½ mic., hyaline.

Based on a collection from New Zealand at Kew, collected by Rev. W. Colenso, on Fagus Solanderi. It is quite close to Fomes

annosus in context color and surface color, but differs in its peculiar shape, and pore development. The pores of the species form continuous layers, as is usual in Fomes, not separate and independent layers, as in Fomes annosus. The type specimens are two to three inches wide, but the collector states that it "grows very large."

SECTION 57. SMALL. CONTEXT WHITE OR ISABELLINE.

We include in this section Fomes ohiensis, which really forms a section of itself. It has large, obovoid, truncate, hyaline spores, similar (except color) to the spores that characterize the section Ganodermus. No other known Fomes has similar spores, but Polyporus ochroleucus does have such spores, and in a natural arrangement should be classed in same section with Fomes ohiensis.

FOMES OHIENSIS.—Pileus small, dimidiate, usually less than 2 cm. in diameter, ½ cm. thick, white, hard. Surface smooth, even, with no distinct crust. Context and pores white. Pores small, round, regular. Spores obovate, truncate at base, hyaline, smooth, 8x12-14.

This is quite a frequent little species in Ohio, growing around Cincinnati, usually on rail fences, rarely on logs in the woods. At New York there is a collection from Cuba, and Romell records it from Brazil. But one collection is so referred from Europe, sent to me from Portugal by Rev. Torrend, but I can not be sure it is not a small specimen of Polyporus ochroleucus. It is unknown from the East being replaced there by Polyporus ochroleucus.

SPECIMENS.—A dozen from Ohio, mostly my own collections, one collection from Dakota, Dr. J. F. Brenckle, but not elsewhere have I gotten this typical form.

Large form.—There occurs in New York State a larger form than the usual Ohio form. I have a specimen 1x1x1½ inches. I have only seen one collection of it from the west.

SPECIMENS.—New York, L. H. Weld, D. Reddick; Ohio, Burt Leeper.

FOMES SCUTELLATUS.—Pileus ligneous, usually scutellate from position of growth on underside of branches, rarely dimidiate, small, usually about a cm. in diameter. Surface rugulose, dark brown or black. Context isabelline. Pores minute, the tissue isabelline, but mouths, when fresh, white. Spores not found by me.

This little species is American only, as far as known. It grows usually on under side of alder, hazel, and other soft wood branches, lying on the ground in moist places. It is common in the swamps of our northern and eastern States. I do not find spores even in freshly-collected material. Fomes scutellatus is well named, for in every collection I have, excepting one, all specimens are scutellate. It is rarely dimidiate. Morgan confused Fomes ohiensis under the name Fomes scutellatus.

SPECIMENS.—Eight collections all from the north, Canada, Michigan, or the east, New York, Vermont, etc.

FOMES ATRO-ALBUS (Fig. 574).—Pileus small, about a cm. in diameter, thin, applanate. Surface with a thin, black, zonate crust. Context and pores white, contrasting with the black surface. Pores minute, round. Spores (B) 2½x3x6-7 mic.

This little species was well named from Java, and is only known from this country. I have not noted strata of pores and am not sure it is a Fomes. There are specimens at Berlin and Kew.

Fig. 574

SECTION 58. CONTEXT PALE YELLOW.

FOMES PINICOLA.—Pileus applanate or ungulate. Surface with a thin, resinous crust, at first white, soon reddish, finally black. Context pale yellow, punky, but hard. Pores minute, round. Pore layers about a cm. thick, pale yellow, harder than the context. Spores 3½-4 x 7-10, obovate, hyaline, smooth.

This is a most abundant species in all pine regions. It usually grows on acerose wood, pine, hemlock, but is not rarely found also on birch and other frondose wood in pine regions. Very common in the United States and Europe, and occurs no doubt through the temperate world. We have seen specimens from Japan, Mexico, India, Philippines, and (?) from New Zealand. There is no uniformity in regard to the name, and in several museums it is found in three covers—Fomes marginatus, Fomes ungulatus, and Fomes pinicola. Both Persoon and Fries thought that the frondose wood from which they called marginatus was distinct from the pine woods form.

Dr. Harper and Prof. Peck both think that two different forms (or species) occur. One an applanate, thin form with broad, annual layers, softer tissue and short lived, the other ungulate, with many narrow, annual layers and long lived. I am inclined to view the difference as one of nutrition. On some hosts (hemlock) where the wood is softer and retains the moisture, the fungus makes a more rapid growth, and more quickly extracts its supply of food, hence grows faster and does not live so long.

ILLUSTRATIONS.—Schaeffer, t. 270 earliest and best. Gillet, t. 464 fine. Others are mostly indifferent.

SPECIMENS.—Europe, many; United States, many; Japan, J. Umemura, A. Yasuda; Philippines, E. D. Merrill, (4 cols.); Mexico, Dr. M. M. Solorzano.

Compare Alni, fulvus, helveolus, marginatus, ponderosus, ungulatus.

FOMES SUBUNGULATUS.—Described from the Philippines, is similar to Fomes pinicola, and has been confused with pinicola. The context is isabelline (rather than yellow) and softer. It has same crust, pores, and I think is an extreme form of Fomes pinicola.

FOMES LATISSIMUS.—Pileus applanate. Surface with a thick, rough, hard, black crust. Context hard, isabelline yellow. Pores very minute, hard, more yellow than the context, indistinctly stratose. Cystidia hyaline. Spores (B) 3½–5 x 6-8. This is known to me only from cotype specimen from Java. Murrill's reference to Fomes ligneus from Philippines is said to be same thing.

FOMES RUFO-FLAVUS.—Pileus small, dimidiate, thin, with a dark, reddish, thin crust. Context pale yellow. Pores in layers (cfr. Myc. Notes, p. 458) in old plants. Pore mouths bright yellow. Cystidia large, rough, hyaline, cylindrical, 8 x 40 mic. Spores (conidial) small, 1½ x 2½ mic.

This little plant appears to be rare in tropical America, and but few and scanty collections have reached Europe. It was named from a Cuba collection. By some means it has become established in hot houses and mines in Europe, and several collections have been distributed (Rabenhorst 2005, Sydow 16) under the name Polyporus Braunii. Most of the specimens found in the museums are this introduced plant. Ordinarily it would not be referred to Fomes, as the usual collection is an annual. I am convinced on comparing (both to eye and microscope) that the introduced European specimens are the same species as originally from Cuba.

Compare Brownii, canaliculatus, Engelii, paradoxus.

Fomes hemitephrus cfr. next subsection.

SECTION 59. CONTEXT COLOR ISABELLINE. CONTEXT HARD.

FOMES HEMITEPHRUS.—Pileus ungulate, with dull surface, becoming dark in old specimens, but indistinct crust. Context hard, woody, yellowish isabelline color. Pores minute, hard, with concolorous tissue.

This species, known only from New Zealand and Australia, is abundantly represented at Kew. Specimens are recorded on Fagus.

SPECIMEN.—New Zealand, P. S. Robinson.

(Cfr. Fomes concavus in section 61.)

SECTION 60. CONTEXT ISABELLINE. SOFT, PUNKY.

FOMES FLOCCOSUS.—Pileus ungulate, with a dull brownish surface, indistinct crust. Context very soft, light, punky, isabelline. Pores harder than the context, concolorous, small, round. Spores 6-7 x 12-14, narrow, elliptical, smooth, guttulate.

The type was from Africa, having been misreferred to Fomes introstuppeus by Hennings. I have a collection from Ceylon, and I believe it to be the same as Polyporus levissimus, which Fries described from Ceylon, and which answers exactly. Excepting as to spores, it reminds me much of the specimens supposed to be young Fomes fraxineus found in our country. It was described as Trametes.

SPECIMENS.—Ceylon, T. Petch.

Compare levissimus.

SECTION 61. CONTEXT PINKISH CINNAMON.

There are four tropical species with context exactly same color on comparison, which matches "pinkish-cinnamon" of Ridgway's scale. The first three seem to me to be same plant, excepting pore sizes.

FOMES SEMITOSTUS.—Pileus thin, applanate, rigid, with hard reddish brown, sulcate, smooth surface, indistinct crust. Con-

text scanty and pore layers pinkish cinnamon. Pores very minute, in narrow (1-1½ mm.) layers.

This is known from the type at Kew, from India. Also a specimen from Fries (Tahiti) sent Kew and labeled (in error) Fomes Kamphöveneri. The illustration, under the name Fomes semitostus, in Petch's work is a misdetermination (cfr. Fomes lignosus). Trametes plebia (which Murrill called Fomes luzonensis) has the same context and pores, but not the same surface, and for me is a Trametes with non-stratose pores. It has been referred to Fomes semitostus as a synonym.

Compare LeRati, tasmanicus, Kamphöveneri.

FOMES NONTOSTUS, with the same context color, pores, and texture. This has well-developed context and the surface is pale, sulcate. It is perhaps a form of Fomes semitostus, but the name has no application to it.

SPECIMENS.—Henri Perrier de la Bathie, Madagascar.

FOMES SCLEROMYCES.—Pileus thin, applanate, with reddish brown surface, blackish with age. Context pinkish cinnamon. Pores small, round.

Known from type (Cuba) at Kew and very similar to preceding, but with distinctly larger pores. It is omitted in N. A. F.

FOMES RUBRITINCTUS.—Pileus thick, applanate, with smooth, brown surface, blackening with age. Context when young pinkish cinnamon; when old, sayal brown. Pores large, round, somewhat irregular. Pore layers separated by thick layers of context in a similar manner to that found in Fomes connatus.

This is based on one collection in Ellis' herbarium, made by Smith in Nicaragua. It was named Fomes laminatus by Ellis and so distributed, Smith No. 138. Afterwards Murrill renamed it as above.

Compare laminatus.

FOMES DOCHMIUS (Fig. 575).—Pileus thin, applanate, with thin edge. Surface with a black, rimose crust. Context pinkish cinnamon. Pores very minute, hard, concolorous, with soft, pubescent mouths.

This seems to be quite a frequent species in the East and West Indies, but most of the specimens at Kew are from Ceylon. It has been confused with Fomes ferreus by Berkeley and others. A single specimen (Wright 248) from Cuba, is at Kew. It was published from Cuba by Berkeley as Fomes ferreus, and is the same plant that Murrill calls Fomes subferreus in part. The recent Vienna exsiccatae 1908, under the latter name, is Fomes dochmius.

SPECIMENS.—Ceylon, T. Petch.

Compare subferreus.

Fig. 575.

Fomes dochmius.

FOMES CONCAVUS.—This is very much the same as Fomes dochmius, same shape, similar context color, pores, but the type has a thick, black crust, showing no disposition to become rimose, and the context has no pinkish tint, but is of an isabelline color. It is known only from type from Australia at Kew.

FOMES ABRUPTUS.—Pileus dimidiate, thin, with acute margin. Surface hard, but no distinct crust, minutely pubescent (under a glass), pale, vinaceous, reddish when dry. Context hard, pale pinkish. Pores minute, with concolorous mouths, and rarely indistinct layers.

Berkeley named this from Aru Island, or at least something that looks something like it. I am not sure it is the same thing, though. I gathered it in Samoa, and as I remember, when fresh it had a pale pinkish surface, and I judge the specimens are much darker color now. I was under the impression that it was a Polyporus, but when I came to describe it I noted distinct layers of pores. The surface color is peculiar. I hardly know where to match it in Ridgway. The minutely pubescent surface has a smooth appearance to the eye, but a low power readily shows the minute hairs. The plant is closely re-

lated to Trametes plebia. Notwithstanding the pore layers of our specimen, I think the plant is a better Polyporus than Fomes.

SPECIMENS.—Australia, W. W. Froggatt; Samoa, C. G. Lloyd.

SECTION 62. CONTEXT CINNAMON.

FOMES FERREUS.—Pileus thin, applanate, with smooth brown or finally black crust, margin often paler color. Context cinnamon, somewhat punky. Pores quite minute, the pore mouths pale, bruising darker.

This species was named from a young species from Ceylon, and seems frequent in Australia and the East. I have collected it in Samoa. The young surface is at first white, becoming black when old, but the usual specimen is generally variegated in color. The context of the type is a shade darker than the fresh material. Fomes ferreus does not occur, I believe, in American tropics. The determination from Cuba should have been referred to Fomes dochmius.

SPECIMENS.—Samoa, C. G. Lloyd.

Compare nubilus.

FOMES FRAXINOPHILUS.—Pileus irregular, unguliform, with hard, rough surface. Context cinnamon, hard, woody. Pores pale, small. Spores 6 x 8 mic., hyaline, smooth.

This species is only known from America. It is not rare in United States, and is found on two hosts, the ash, and in the West on Shepherdia. The latter has been called Fomes Ellisianus, but excepting as to host is the same as Fomes fraxinophilus. Growing on the small stem of Shepherdia, it often nearly surrounds the stem, and differs usually in form from the same plant as it grows on the large trunks of the ash. The context, pores, spores, and every essential character are the same.

SPECIMENS.—On ash, a number from Dakota in the West to New York in the East. On Shepherdia from Montana, Dakota, and Nevada. We have one collection on oak from Dr. J. F. Brenckle, North Dakota.

Compare circumstans, Ellisianus.

SECTION 63. CONTEXT PINK OR ROSE COLOR.

FOMES ROSEUS (Fig. 576).—Pileus ungulate, at first with a reddish crust, in old specimens black and sulcate. Context Corinthian pink to buff pink, hard. Pores concolorous, minute, in distinct layers. Spores oblong, 4 x 10, hyaline, smooth.

This is a rare species both in America and Europe, and I have never seen the typical European form from the United States, but connecting forms. It has been confused with Trametes carnea, a very frequent plant in America. Bresadola gave them as synonyms, which was copied by Murrill, hence the account of "Fomes roseus" in N. A. F. does not refer to this plant. I protested to Bresadola, and

he has since corrected it in a measure, but Murrill has probably never learned the difference.

Fomes roseus grows on coniferous wood. It is rare and few specimens are in the museums.

ILLUSTRATIONS.—Fries Icones, t. 186 as rufo-pallidus. Drawn from young specimen. I am satisfied that Fries Icones t. 184, fig. 1, represents old Fomes roseus. It is labeled Polyporus roburneus, but has little resemblance to the type at Kew, and it does well represent old Fomes roseus.

Compare Alni, fulvus, rufo-pallidus.

Fig. 576.
Fomes roseus.

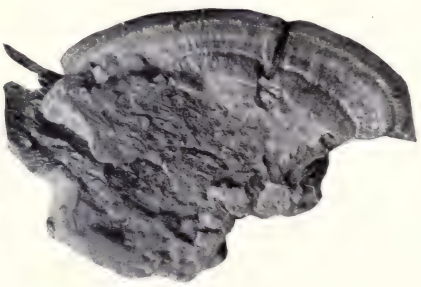

Fig. 577.
Trametes carnea.

TRAMETES, WITH PINK OR ROSE COLOR.

There is a group of plants with flesh or rose colored context that is usually classed either as Polyporus, Polystictus, or Fomes. I think it is better classed as Trametes, but will not discuss here the troublesome question as to how Trametes differs from the other genera. We shall consider here the species of this group only.

TRAMETES CARNEA (Fig. 577).—Pileus thin, rarely a half cm. thick, usually long and narrow, often largely resupinate. Surface (in the Eastern form) even, slightly rugulose, varying reddish, pale or dark in same collection. Context fibrillose, corky, salmon rose. Pores concolorous with concolorous mouths, minute, round, 2-3 mm. long.

This is a frequent plant in the pine regions of the United States, usually on coniferous trees. It is unknown from Europe. In all American mycology it has been called Fomes carneus, "Nees" a tradition handed down from Berkeley, and the name is so well fixed to the American plant that it is too late, in my opinion, to correct it, especially as the only way would be to call it a "new species." While this is not the original of Polyporus carneus evidently, as it does not grow in Java, no one knows what Polyporus carneus originally was (probably Polyporus rubidus, but that is a guess), there is no good reason why we should not continue to apply it in the sense it has acquired by years of use. Bresadola referred it as a synonym for Fomes roseus, and Murrill copied him, but the only resemblance it has to Fomes roseus is the context color. They are not only different plants, but had better be classed in different genera.

Trametes carnea is usually a good, thin Trametes. I have a few specimens thickened with an additional, indistinct pore layer, but it is never a good Fomes. In our Eastern States the surface is even and often pale, but in the West it is more fibrillose, uneven, and dark. The following is a marked variety.

SPECIMENS.—Many, extending clear across the United States. None from foreign countries.

Compare Palliser.

TRAMETES ARCTICA.—This is evidently only a form of Trametes carnea, with the surface silvery white, with appressed fibrils. It is known at Kew from two collections, British America, and in my collection there is a plant from Dr. W. H. Henderson, California. It does not occur in our Eastern States where the type form of Trametes carnea is so common. Berkeley labeled it in his herbarium Trametes arctica, also Polyporus Palliser. Cooke endeavored to publish it under the latter name, but he made such a mess of it (cfr. Note 8, Letter 32) that it is better to drop Polyporus Palliser entirely.

Compare Palliser.

Fig. 578.
Trametes Feei.

TRAMETES FEEI (Fig. 578).—Pileus thin, pink color, applanate (10 x 14 x ½ cm.). Surface appressed, fibrillose with a zonate effect, glaucescent. Context thin, punky. Pores minute, round.

This is a tropical, American plant, very similar to Trametes carnea as to size, shape, and color, and I am not sure it is a different species. It was named by Fries from Brazil, but no specimen is in his herbarium. There is at Paris, however, an evident cotype from the herbarium of Desmazières "recu par Mr. Fee, Brazil, 1826." The fibrillose surface, which is the only distinction between this plant and Trametes carnea, is not always in evidence, and I think the two plants merge into each other. Trametes Sagraeana, named by Montagne from Cuba, is very similar, though most of Montagne's species under this name, from Brazil, are Trametes cupreorosea. At New York are many collections from West Indies, referred to Trametes Sagraeana.

TRAMETES SAGRAEANA.—Pileus thin, rigid, attached by a reduced base. Surface smooth, even, dull, soft to the touch. Context thin, punky. Pores minute, round, firm.

The type form, as illustrated by Montagne from Cuba, has very minute pores, and differs from Trametes Feei in more punky context, and surface soft to the touch, not hard and fibrillose. The type is marked by Montagne "Cuba." In the same cover, however, is another specimen marked "865" (from Leprieur), with large, sinuate pores, which Montagne also refers to Trametes Sagraeana. For me, it is Trametes cupreo-rosea. Trametes Sagraeana seems to be rare in the West Indies, and I have noted only the type. The abundant specimens so referred by Murrill from Cuba are Trametes Feei.

TRAMETES LILACINO-GILVA.—Pileus applanate, usually thin, rose or pink color, with surface strongly rugose, fibrillose. Context concolorous, punky. Pores medium round, concolorous. Spores oblong, hyaline, smooth, 4 x 8 mic.

The Australian analogue of Trametes Feei of American tropics, and of about the same color and surface. It differs in having notably larger pores and more strongly fibrillose surface. It seems to be frequent in Australasia, but is not known to me elsewhere. The next species with even surface has same color and pores, and is a form probably. The Australian forms all have larger pores than the analogues in the American flora.

TRAMETES EUCALYPTI.—This is an Australian form, agreeing with Trametes lilacino-gilva as to color and pores, but having even pileus, corresponding to surface of Trametes carnea. It is not as frequent in Australia as lilacino-gilva, and but one collection is at Kew. There is no type but a figure by the author at Kew.

TRAMETES CUPREO-ROSEA (Fig. 579).—Pileus thin, rigid, attached by reduced base, (6 x 9 x ½ cm.). Surface striate fibrillose,

pale rosy color (buff pink). Context thin, hard. Pores medium to large, ½ mm. round, at length long, sinuate, daedaloid, ½ x 2 mm. rigid, with thin walls. Tissue concolorous.

A number of specimens are at Kew from Brazil, also a collection from Malay. I know no other from the East. At Paris, Montagne

Fig. 579.
Trametes cupreo-rosea.

got it also from Brazil and referred it to Sagraeana of Cuba, which has much smaller pores. I have never gotten it from Rev. Rick, who finds Trametes Feei abundantly, nor have I ever seen specimens from the West Indies.

TRAMETES ROSEOLA.—Pileus sessile, narrow behind, (8 x 10 x 1½ cm.), thinner towards the margin, firm. Surface dirty rose color, not zoned, slightly rugulose. Context punky, dry, pale salmon, (light ochraceous salmon). Pores minute, rigid, 1-2 mm. long. Spores globose, hyaline, 4-5 mic.

This is a fine species, recently named from Africa. It is quite close to Trametes plebeia as to color, but differs as to context. It proves quite common in Africa, and I have specimens from Ceylon and Japan. How it escaped a name to such a late day I am not able to state.

TRAMETES PLEBEIA.—Pileus applanate, with thin edge, hard, rigid, nearly unicolor. Context, surface, and pores pinkish cinnamon. Surface smooth, dull, minutely velutinate, soft to the touch. Context hard, rigid. Pores minute, round, with thick walls.

Why Berkeley called this "plebeia" I do not know, for it is neither "common" in appearance nor occurrence. He named it from New Zealand, but recorded it also from India. The New Zealand specimen is not preserved, but we assume it was the same as the India specimen which is in existence, especially as the "description" covers it. It is not right to charge Berkeley with not knowing his own species when one has no evidence, and can only assume it as a prob-

ability. It is better to assume that Berkeley's New Zealand specimen was the same as the Indian specimen, rather than discover it to be a "new species," as Murrill did.

Trametes plebeia appears to be rare. At Kew there is only the Indian collection, but it has been found again recently in the Philippines (Copeland, 182), and good specimens distributed. Berkeley referred habitually to Trametes plebeia var. cubensis a common plant (Polyporus supinus) of American tropics, which is not a variety and has no analogy to it.

SPECIMENS.—Philippines, E. D. Merrill.

Compare luzonensis.

Fomes roseiporus with pink pores and white context. See in subsection 55.

2ND GENERAL DIVISION, DEPALLENS.

SECTION 64. PORES DARKER THAN THE CONTEXT, USUALLY PALING OUT IN OLD SPECIMENS.

The plants grouped under this head have a closer relationship than is generally supposed. A marked difference is in the color of the pores and context, not found in any other section. Spores are all globose. The bright color of the fresh pores fades in old specimens, which is also a character common to all.

FOMES ULMARIUS.—Pileus ungulate or applanate, but more often forming irregular masses, usually growing at base of the trees. Surface at first white, dark in old specimens, with no distinct crust. Context at first white, changing in old herbarium specimens to yellow. Pores, when fresh, bright orange, drying chestnut red. Spores large, globose, hyaline, smooth, with thick walls measuring 8 mic. in diameter.

Fomes ulmarius is a frequent plant in Europe, growing on the elms and probably causing the hollow trees. Mrs. Hussey gives an excellent figure and account of it. It has not been found in the United States, unless the next species is the same thing. I have it from Japan.

I am convinced that historically Fomes ulmarius should be called Fomes fraxineus, as the coloration of Bulliard's figure on which fraxineus was based represents Fomes ulmarius, not Fomes fraxineus as it is known to-day. (See remarks under Fomes fraxineus.)

ILLUSTRATIONS.—Mrs. Hussey Pl. 64 (the best); Bulliard, t. 433, f. 2 (the type figure of Fomes fraxineus, but it represents Fomes ulmarius); Berkeley's Outlines, t. 16, f. 5 (poor); Lucand, t. 200 (pores inaccurate). Sowerby, t. 88 (coloration of pores not good).

Compare incanus.

FOMES GEOTROPUS.—This is the tropical form of Fomes ulmarius, and probably the same species. It differs when fresh in the more yellowish pores, and when dry in the more rugulose surface. I think, however, it is practically the same thing. It occurs in tropical America, and is quite frequent in our Southern States, growing on various hosts, and particularly the cypress. In fact, it is supposed that

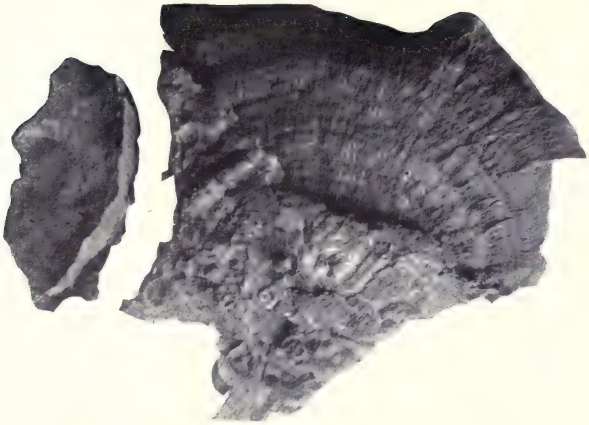

Fig. 580.
Fomes lignosus,
(Polyporus form).

Fig. 581.
Fomes lignosus.
On the roots of a rubber plant

the hollow cypress trees are caused by this fungus, in which case it causes much damage and a serious loss to the lumber trade.

Compare Auberianus, glabrescens.

FOMES LIGNOSUS (Fig. 580, Polyporus form).—Pileus applanate, usually thin, 1 to 2 cm. thick, rarely of a truly Fomes form, 4 to 6 cm. thick, with many annual layers. Surface reddish brown when fresh, smooth, even, but drying with narrow, sulcate zones. Flesh white, becoming yellowish in old specimens. Pores minute, bright orange on the growing surface, but fading out below. Spores never found by me.

This is a most common plant throughout the tropical world, and has had many names. It is a distinctive disease of the rubber tree, attacking and destroying the tap roots and causing the death of the tree. We are told that in rubber countries it is quite a pest, and is all the worse because the mycelium attacks the roots of the tree and is not found until the damage is done. We have an account and figure (reproduced Fig. 581) in Myc. Notes, page 519, and Prof. Petch gives a full account in his "Diseases of Hevea" and a colored figure under the misname Fomes semitostus.

Fomes lignosus rarely takes true Fomes form. Usually it is thin, growing imbricate, and would be sought as a Polyporus (Fig. 580). Often it is resupinate, over large extent, and these resupinate pieces contract and curl in drying. The curious feature of the pores losing the color in the older portions only, is, as far as I have noted, peculiar to this species, and by this feature I can tell the species at sight.

ILLUSTRATION.—Petch, Diseases of Hevea, frontispiece, Mycological Notes, page 519, Fig. 515. (Reproduced Fig. 581.)

Compare Auberianus, diffusus, Kamphöveneri, microporus.

NOTE.—Polyporus zonalis, a true annual, is a close relation of Fomes lignosus, and not always easy to tell from young Fomes lignosus. The coloration and surface of pileus is the same, but the pores do not fade out. Spores globose, 4-5 mic. are usually found in Polyporus zonalis, and never found in dried specimens of Fomes lignosus to my knowledge.

FOMES FRAXINEUS.—Pileus applanate, with a pale, hard, dull surface, becoming brown when old. Context at first soft, punky, white (or pale), at length hard, ligneous. Pores small, round, the tissue pale with a faint pinkish tinge. Spores (W) subglobose, 5 x 6.

This is a frequent species in Europe on ash, apple, locust, and other frondose wood. It sometimes attains a very large size. We take it in the sense that it has become established by use, although not correct historically, for Fomes fraxineus originally with its colored pores was no doubt the same as Fomes ulmarius. It is closely allied to ulmarius, and has been generally confused. Berkeley seems to have been the only one who appreciates the real difference. He called this plant Fomes cytisinus, which in justice is the correct name for it. In America Fomes fraxineus is quite rare, and I have never seen anything but the earlier punky forms, and they are doubtful.

ILLUSTRATION.—Sowerby, t. 288 (as Boletus suberosus).

Compare cytisinus, incanus.

3RD GENERAL DIVISION, AURANTIACUS.

Fomes with "red" context have been variously designated as latericeous or in Saccardo as ruber. I think they all have an orange shade. They match in Ridgway with orange rufous or Sanford brown. No species occurs in Europe, and but one rarely in the United States. They are mostly tropical.

SECTION 65. CONTEXT ORANGE RUFOUS. SPORES HYALINE (OR VERY PALE COLORED).

FOMES KERMES.—Pileus thin, applanate, with a dull orange surface, but no distinct crust. Usually the plant is largely resupinate with a slightly reflexed pileus. Context bright, latericeous (I should call it), but it matches Ridgway's orange rufous. Pores minute, round, at first (apparently) white, but soon become concolorous with the context. Spores not found, but undoubtedly white.

This is the most frequent red species that occurs in the East. Quantities of it have been distributed lately from the Philippines under the absurd name Fomes albo-marginatus. It is found also at Kew as Polyporus laeticolor from Philippines, Fomes kermes (the best name) from Ceylon, Fomes pyrrhocreas from Australia, and at Berlin as Fomes ochrocroceus from Java. It does not occur in the American tropics.

Compare laeticolor, albo-marginatus, ochrocroceus, pyrrhocreas.

FOMES (?) LAETUS.—Pileus thin, apparently fleshy. Spores globose, white, smooth, 5-6 mic.

It is the same colored context and is probably the same plant as Fomes kermes. Still there is no evidence that the type is a "Fomes," and it is thinner, more fleshy, and from this one collection should be classed as Polyporus. If it is a Polyporus, however, there is nothing to indicate that it is a Merisma, as classed.

FOMES PERLEVIS.—Pileus ungulate, (type specimen 6 x 10 inches). Surface dark fawn, with no distinct crust, soft, easily indented. Context orange rufous, soft. Pores in distinct layers, medium, round, the tissue concolorous, but the mouths and hymenial layer pale or white. Spores abundant, mostly 4-4½ x 5½-6 hyaline, a few (probably the ripe ones) 6-7 x 7½.

This is remarkable in its light weight and soft texture, but notwithstanding it is a true Fomes. The context is orange red, but the pale pores and light surface give no indication of it in an uncut specimen. I have received several collections from Henri Perrier de la Bathie, Madagascar. It is unknown otherwise.

Poria fulvo-umbrinus. This, as far as known, is a resupinate Fomes from Brazil, with orange rufous context and elliptical, subhyaline or pale colored spores 4 x 7 mic. It is the only similar plant known from the American tropics. The color of context is exactly the same as that of Fomes tricolor, but why called "yellow umber" when it is orange red?

SECTION 66. CONTEXT ORANGE RUFOUS. SPORES COLORED.

FOMES JUNIPERINUS.—Pileus ungulate, or narrowly ungulate, with a black, rimose, rough surface. Context hard, woody, orange rufous. Pores medium 2-3 to mm., at first round, at length often elongated by tearing of the walls, at first ochraceous, the tissue of the old layers gradually assume the red color of the context. Setae, none. Spores abundant, globose, 4-5 mic., pale colored.

This is a rare plant, growing, as far as known, only on species of Juniperinus, hence well named. In the United States it has been collected scantily in Kentucky and Tennessee (cfr. Myc. Notes, p. 522), but in recent years more abundantly in the Southwest (Texas, New Mexico, and Arizona), and always on juniper. In Europe it is known from a single specimen collected in Russia on juniper seventy years ago, and preserved at Paris. I am told it has also been collected in Africa, and a recent specimen sent to Kew.

SPECIMENS.—I have a fine specimen from Arizona. W. H. Long.

Compare Demidoffi, Earlei.

FOMES TRICOLOR.—Pileus large, applanate, with black, rimose crust. Context latericeous red, hard, woody. Pores minute, concolorous, paler when young, hard, woody. Pore mouths brownish. Setae, none. Spores colored, 5-5½ x 6-6½, smooth, abundant.

This species is known from a few collections in Philippines. There is a cotype at Kew. It seems to be badly named. The spores were described as "hyaline with brown walls" (sic.)

FOMES LATERITIUS.—Pileus thick, ungulate, seemingly with a thick, brown crust. Context hard, woody, latericeous red. Pores minute, concolorous, hard. Pores small, concolorous. Spores globose, 5-6 mic., colored, smooth.

While the "description" reads much like the preceding, they are quite different plants. Fomes lateritius is known from two specimens at Kew, one from Brazil, the other from Demarara.

4TH GENERAL DIVISION, BICOLORIS.

SECTION 67.

This section with bicolored tissue, the pores a dark brown, the flesh a light buff, is a unique section, embracing but two known species, which are perhaps the same. The spores of one are large, globose, brown. The section is related to the section Amaurodermus in the stipitate series.

FOMES MIRABILIS.—Pileus applanate (10 x 18 x 3 cm.) with a hard, regular, brown crust. Context 1-1½ cm. thick, pale buff when dry, more yellow when moist, hard, ligneous. Pores Verona brown, contrasting with the pale context, 1½ to 2 cm. long, minute.

hard, with yellow pore mouths. Spores globose, 7-8 mic., light brown color, smooth, punctate.

This was received from C. B. Ussher, Straits Settlement, and named in Letter No. 33. It impressed me as being very curious with its contrast of context colors and its yellow pore mouths. The pores are not stratified, and, strictly speaking, it is probably better classed as Polyporus than Fomes. The hard, woody nature is quite different, however, from any other Polyporus, and suggests only Fomes.

FOMES SCULPTURATUS.—As to its macroscopic features, it is the same as Fomes mirabilis, excepting that the pore mouths are concolorous (not yellow). The spores, however, are quite different. Large, 14 x 20 mic., ovate, brown, with a minutely punctate epispore. The epispore with brown marking is thicker near the base of the spores, and in its spores it approximates the stipitate section Amaurodermus.

We get this plant abundantly from Henri Perrier de la Bathie, Madagascar, and when we received it were impressed with the large, brown spores that ally it to Amaurodermus. There is no other plant that approximates it excepting the preceding. We thought these spores were conidial, and we believe now that Fomes sculpturatus may be a conidial form of Fomes mirabilis. It is curious, however, that among several specimens received at different times from Madagascar none have the same spores as the Malay specimen.

5TH GENERAL DIVISION, FUNALIS.

SECTION 68.

Pileus with a thick pad of dense, brown hairs, analagous to section Funalis in Polystictus.

FOMES PSILA (Fig. 582).—Pileus applanate, with thin edge. surface covered with a thick pad of dense brown hairs. Context dark brown (Buckthorn brown). Pores hard, woody, very minute, with concolorous tissue and mouths, in distinct layers 4 to 5 mm. thick. Setæ, none. Spores not found, but surely hyaline.

Fig. 582.

This plant is an anomalous Fomes, and were it not for the distinct pore layers would be classed in Trametes by the side of Trametes hydnoides. The first suggestion was that it was a lapsus of Trametes hydnoides. It could be made the type of a monotypic genus. No other plant is known with stratified pores and similar pileus covering. But one specimen is known, which was sent to me from Brazil by Rev. Rick.

6TH GENERAL DIVISION, FUSCUS. CONTEXT SOME SHADE OF BROWN.

SECTION 69. CONTEXT BROWN. SETAE, NONE. SPORES HYALINE.
A.—Context light brown.

FOMES CALKINSII.—Pileus unguliform, with smooth, hard, reddish brown, at length black crust, furrowed by the overgrowing layers. Context color fulvous (ochraceous tawny) brown, hard, woody. Pores minute, with darker mouths, but the tissue is exactly concolorous with the context. Spores 5-6 x 10, hyaline, smooth (not guttulate or granular contents). Setae, none.

This is a species of Florida, growing on the oak. It was sent to Ellis by Calkins, and Ellis referred it to Fomes igniarius. I found it rare in Florida. I do not find spores in dried specimens. My record is from those thrown down from fresh specimens. Fomes Calkinsii is quite close to Fomes robustus, but has darker context color and different spores.

FOMES ROBINSONIAE.—Pileus applanate, with a rough, brown, sulcate surface. Context bright yellow (raw sienna). Pores minute, in uneven layers with concolorous tissue and dark, velutinate pore mouths. Setæ few. Spores globose, hyaline, 3-4 mic.

Fig. 583.
Fomes adamantinus.

This is known only from one collection, Jamaica, at New York. In its grosser characters it closely resembles Fomes rimosus. Similar context color, surface, etc., but the hyaline spores and presence of setae clearly distinguish it. It was recorded as having no setae. The plant is very close to Fomes cinchonensis, being almost the same under the microscope. The rimose surface is different, if that is a difference. This species is here by inadvertence. It belongs to next Section (70).

FOMES ADAMANTINUS (Fig. 583).—Pileus applanate, with a smooth, black crust. Context hard, rigid, color at first ochraceous tawny when old cinnamon brown. Both colors are sometimes noted in same specimen. Pores minute with concolorous tissue and mouths. Setae, none. Spores (B) 2½ x 3 x 3½-4 hyaline.

A quite rigid species of the East. The type is from India, at Kew, but there is also a collection from Japan, and it is recently recorded in the Philippines. The different color of young and old context is unusual in Fomes.

Compare glaucotus, pachydermus.

FOMES INFLEXIBILIS.—Pileus smooth, applanate, with ridged surface, or subresupinate with slightly pileate development, (both forms at Kew). Surface with hard crust-like appearance, but no distinct crust. Context very pale brown (slightly paler than Buckthorn), hard, well named inflexibilis. Pores very minute, with mouths concolorous with context. Setae, none. Spores globose, hyaline, 4 mic.

I think this is known only from types at Kew from Brazil. The recent records from Java and Jamaica are, in my opinion, both misreferences.

Compare crustosus.

FOMES EXOTEPHRUS.—In general appearance and shape, black, glabrous, rugulose crust, etc., this is quite close to Fomes caliginosus (compare on page 237). The only marked difference is in the paler color of the context, which is light brown (cinnamon) color. I do not find any spores, often so abundant in caliginosus. At Kew, Fomes exotephrus is known from a single specimen, collected by the Challenger expedition (Admiralty Island). I doubt if it is the same as the specimen labeled Fomes caliginosus, and collected on same island. Context dark brown.

In one species (under D), Fomes melanopus, the surface is dark purplish black, but the context is dark brown.

B.—Medium or large species.

FOMES FOMENTARIUS (Fig. 584).—Pileus ungulate, with a hard, smooth, grayish crust. Context punky, dark brown (Antique brown). Pores minute, with glaucous, pruinose mouths. Pore tissue paler than the context. Setae, none. Spores hyaline, large, oblong, 5 x 16 mic.

Fig. 584.
Fomes fomentarius.

This is a common species in many countries no doubt. In Europe it takes two forms. First, a very large, ungulate form with soft, punky context, on the beech in France. This is the only common Fomes at Fontainbleau. Second, a smaller, harder form on the birch in northern Europe. In the United States we do not have the beech form, as far as I have seen, but the form on birch is quite common in some localities.

Fomes fomentarius is often confused in the museums with Fomes igniarius and also Fomes applanatus. I have specimens of Fomes fomentarius from India and Japan. A form is also very common in the American tropics, called Fomes marmoratus.

ILLUSTRATIONS.—Many have been issued. Sowerby, t. 133 and Fries Sverig, Atlas t. 62 are both characteristic.

SPECIMENS.—United States and Europe, abundant; India, G. H. Cave, B. Sahni; Japan, A. Yasuda.

Compare introstuppeus. Inzengae, excavatus, expansus, mirus.

Variations.—As previously stated, the "beech" form and the "birch" form are slightly different plants, but hardly entitled to separate names.

FOMES NIGRESCENS.—This form of Fomes fomentarius has a black, shiny, sulcate crust (cfr. Pol. Issue, page 16, fig. 210). This is probably the original form intended by Fries for his Fomes nigricans, but I think was confused in his latest work with the black form of Fomes igniarius. His specimens at Kew and Upsala at least are a form of Fomes igniarius. Fomes nigrescens is the plant that Klotzsch collected in Scotland and cited by Fries as Fomes nigricans. The specimen is in the exhibition case at Berlin.

FOMES MARMORATUS.—This is the most common Fomes we have in the American tropics. It is generally held to be a distinct species, but for me is the same as Fomes fomentarius in every essential. It usually differs in shape, being applanate instead of ungulate; sometimes it is quite thin. The pores are more minute. The context color is exactly the same in some specimens, in others a little lighter. The spores are hyaline, smooth, with granular contents 5-6 x 10-12 mic. as I measured them from fresh specimens recently in Florida. The crust is usually marked with black bands, but the same character in a less degree is often noted in Fomes fomentarius. I have specimens from Japan that can not be told from those of the American tropics.

Fomes marmoratus has in recent years been called by me and by others Fomes fasciatus, under an impression that a type was at the British Museum. Investigation develops that this plant has no authentic history. A cotype in Thunberg's herbarium is stated to be quite different. (Cfr. Notes 33 and 131).

Compare fasciatus, sclerodermeus, subfomentarius.

FOMES ALBO-ATER.—At Kew is a collection from Brazil (Spruce 58) which appears to be a form of Fomes marmoratus. It has a smooth, black crust, but the new marginal growth is white, contrasting strongly, and the context color is much darker brown.

Compare memorandus.

FOMES CALIGINOSUS.—Pileus thin, applanate (8-12 mm. thick), with a dark brown, or generally black, smooth, rugulose crust. Sometimes shiny, laccate. Context and pore tissue dark brown (Brussels brown). Pores minute with concolorous tissue and mouths. Setae, none. Spores usually abundant, subglobose, small, 3 mic., subhyaline.

This seems to be a frequent species in the East, Philippines, and Pacific Islands, but absent from American tropics. It is quite light in weight, and is not a typical Fomes, but rather has the appearance of being a lignescent Polyporus. The black crust is sometimes shiny, laccate, and then the first suggestion is a Ganodermus. Usually, however, it is dull.

SPECIMEN.—Ceylon, T. Petch.

Compare mortuosus, peguanus, roseo-albus, Cesatianus, Copelandi, endapalus.

FOMES SUBFLEXIBILIS.—Only known from the type at Kew, from Cuba, which is not very good and surely is not a Fomes. The context is brown, rather soft, and easily indented with the finger nail. Pores rigid, minute, concolorous, with concolorous mouths. Setae, none. Spores small, 3-3½, very pale color, almost

subhyaline. It might be recognized by comparison if ever found again. The rigid pores and rather soft flesh are the most prominent characters. The species is closely related to caliginosus.

FOMES SURINAMENSIS.—Pileus ungulate, with smooth, black, sulcate crust. Context cinnamon brown, hard, uniform. Pores very minute, with concolorous tissue and darker mouths. The layers are indistinct and hardly distinguishable. Setae, none. Spores globose, hyaline, 4 mic.

This is known from Surinam, only the types at Leiden. It could be compared to Fomes robustus, but setae are absent and context color is of a darker shade.

FOMES ROSEOCINEREUS.—Pileus very hard and heavy, applanate to unguliform. Surface with a rough, sulcate, brown crust. Context dark brown (Sudan brown). Pores very minute, hard. Setae, none. Spores globose, hyaline, 5-6 mic.

This species approaches igniarius in its context color, and spores, but is a heavier and harder species and pores are more minute. It is known only in the museum at New York, from Cuba and Central America. I think it is not well named. To my eye, there is nothing roseus and little cinereous about it.

Fig. 585.
Fomes scalaris.

FOMES SCALARIS (Fig. 585).—Pileus thin, applanate, with a dark, dull, fuliginous, almost black, surface, no distinct crust. Sulcate with annual ridges. Context hard, brittle, dark, fuliginous

brown (Mummy brown). Pores very minute, with concolorous tissue and mouths. Setae, none. Spores not found, doubtless white.

Known only from the type at Kew, from Brazil. The annual ridges of the pileus suggesting steps, whence the name. I have a collection from Java which has been referred here, but to me it is quite doubtful.

FOMES BACCHARIDIS.—Pileus small, applanate. Context dark brown. Setae, none. Spores abundant, hyaline, globose, 7-8 mic.

This is known to me only from some type material from Patouillard. It is a small species, comparable to Fomes conchatus, excepting in having no setae. It comes from tropical America.

FOMES TENUISSIMUS.—Pileus very thin, 3-4 mm. thick, with rugulose, zoned surface. Context dark brown. Pores minute. Setae (?) reported scanty by author, not found by me. Spores globose, hyaline, 3½ mic.

This is scantily known from Philippine collection. If it is a Fomes, as it appears to be from its woody context, it is surely the "thinnest" Fomes known.

NOTE.—Setaeless specimens of Fomes igniarius would be sought in this section.

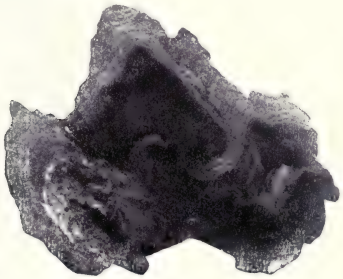

Fig. 586.
Fomes angularis.

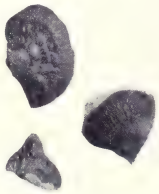

Fig. 587.
Fomes atro-umbrinus.

C.—Small Species, 1-3 Cm.

FOMES ANGULARIS (Fig. 586).—Pileus angular, semiresupinate, small (2-3 cm. wide, 1-1½ cm. thick). Surface black, hard, with narrow, raised zones. Context dark brown (Prout's brown). Pores minute, with narrow layers 1 mm., tissue and pore mouths concolorous. Setae, none. Spores (?) hyaline, globose, 3½-4 mic. Numerous crystals are found in making a section.

This is a small species, peculiar in its angular shape, collected by Jintaro Umemura, Nagoya, Japan, growing on Pasania. It was carelessly published as Fomes angulus. I have also some sub-resupinate specimens.

FOMES PUSILLUS.—Pileus unguliform, 1 to 1½ cm. in diameter. Surface with smooth, ridged, brown crust. Context cinnamon brown. Pores very minute. Setae, none. Spores globose, hyaline, 5-6 mic., smooth.

A little species that was collected on stems of Zelkowa acuminata by A. Yasuda, Japan. It is only known from this collection. It is quite close to Fomes atro-umbrinus of Brazil, but crust is not black and context is not so dark.

FOMES ATRO-UMBRINUS (Fig. 587).—Pileus small, unguliform, 1 to 1½ cm. Surface with an intense, black, smooth crust. Context dark brown. Setae, none. Spores not found.

This little species is hardly over a cm. in diameter. It is only known from the Spruce collection, Brazil, at Kew. The best specimens are found in the holomelanus cover.

Compare holomelanus.

D.—Plants dark purplish black. Context dark brown, with a purplish shade.

FOMES MELANOPORUS.—Pileus applanate (from 1 to 3 cm. thick), dark, almost black when old. Surface (in the type specimen from Cuba) tomentose, sulcate, but in most specimens so referred the surface is hard and smooth. Context dark purplish brown (seal brown), hard. Pores minute, the color when fresh, dark "atro-purpureus" with velutinate mouths. The tissue color of pores is darker than the context color. Setae, none. Spores hyaline, about 3 x 4 mic.

Probably a quite frequent species in most tropical countries. It is one of the heaviest, hardest species. I have noted specimens from Florida, Central America, West Indies, India, Malay, Java, Madagascar, Philippines, New Caledonia, Japan. The type specimen is distinctly tomentose, sulcate, but it either loses that feature when it becomes old, or else the usual plant is not the same as the type. Some specimens also have velutinate pore mouths; in others this is hardly noticeable. Fomes melanoporus is exceptional among the Fomes species in its dark "atro-purpureus" color, exteriorly so nearly black that Murrill's invention "Nigrofomes" would not be a bad name for it if it needed a new name. The dark coloring matter of the plant is soluble in lactic acid.

SPECIMENS.—Africa, Henri Perrier de la Bathie; Philippines, E. D. Merrill; Japan, A. Yasuda; Nicaragua, C. L. Smith.

Compare melanoporoides, Cornu-bovis, endophaeus, phaenus.

SECTION 70. CONTEXT BROWN. SETAE PRESENT. SPORES HYALINE.

A.—Context Light Brown.

FOMES POMACEUS (Fig. 588).—Pileus half unguliform, but usually more inclined to take a subresupinate form with the pileus imperfectly developed. Surface at first fulvous, tomentose on the margin, later cinereous, after wintering turns dark, but not black as Fomes igniarius. Context fulvous brown (Amber brown), intermediate between the color of context of Fomes igniarius and Fomes robustus. Pores minute, round, annual layers 5-6 mm. Setae usually abundant, with thickened base, projecting 12-16 mic. Spores globose, hyaline, 5-6 mic.

Fig. 588.
Fomes pomaceus.

Fomes pomaceus is a frequent plant in Europe, usually on the plum trees (Prunus). In fact, in England it is a distinctive disease of the plum. It occurs in Europe also on cherry and other allied cultivated trees, but never, I believe, except on trees of the Rosaceous family. With us in the United States I only know it on wild species of Prunus. I have never noted it on cultivated plums.

Persoon had a clear idea of Fomes pomaceus, as is evident from his specimen and writings, and he seems to have been the only one who had until recent years. Fries held it as a variety of Fomes igniarius, and his description of igniarius was drawn partially from this plant. Schroeter confused it with Fomes igniarius. Berkeley always referred it to Fomes igniarius, and those who followed Berkeley in England have apparently never learned the difference. Quélet got it right. Bresadola discovered that it was Fomes fulvus of Scopoli, being one of six different men who have interpreted Scopoli's vague writings, each one with a different species. Murrill copied Bresadola. It was the basis of Fomes supinus (sic) in Morgan's work.

ILLUSTRATIONS.—If it has been illustrated, it has been under the name of igniarius or fulvus probably. I have not bothered to look them up.

SPECIMENS.—Many from Europe, mostly on plum trees. Many from the United States on wild plum. Foreign, Madeira, Carlos A. de Menezes, exactly as in Europe. Australia, Edmund Jarvis, specimen doubtful, cfr. Letter 37.

FOMES TEXANUS.—This is intermediate between Fomes igniarius and Fomes pomaceus. It occurs on Juniper in the Southwest. The black, rimose surface and general appearance of the plant is that of Fomes igniarius. The context color is intermediate, perhaps close to pomaceus. The spores of all three are the same (5-6, not 3-4, as described). Fomes texanus has yellow mycelium, agreeing with Fomes pomaceus in this respect.

FOMES CINCHONENSIS.—This, for me, is a large tropical form of Fomes pomaceus, differing, as far as I can note, in its large size, but in no essential character, context, color, spores, or setae. It also has the abundant yellowish, mycelial hyphae overrunning the old tissue, which is a frequent feature of Fomes pomaceus.

Compare Fomes Robinsoniae on page 234. Should be entered here.

Fig. 589.

Fomes robustus.

FOMES ROBUSTUS (Fig. 589).—Pileus ungulate, with a hard, rimose, black crust. Context light fulvous. Rhei color would be the best name for it, being the color of commercial rhubarb root. It is near to yellow ochre of Ridgway. Pores minute, with pore tissues concolorous. Spores globose, hyaline, 7-8 mic., guttulate when fresh. No setae found by me. (I am informed that setae have been noted in a Swedish specimen.)

Fomes robustus grows fairly common in Europe on the oak. It was named by Karsten (so I am told by Romell), but Karsten distributed it No. 95, labeled Polyporus igniarius. Externally, it closely resembles Fomes igniarius, but there is a marked

difference in the color of the context of the two species. If Persoon or Fries met the plant, they never noticed the difference. It is only recently that attention was drawn to the fact that the plant on oak, called Fomes igniarius by the French botanists to this day, is quite different from the plant on willow called Fomes igniarius by Fries. Mr. Romell first brought it to my notice. Hartig (in 1878) figured under the name Polyporus fulvus a Fomes on the silver fir (Abies pectinata). It has been distributed from Italy as Fomes igniarius var. Abietinus. It was afterwards called Fomes igniarius var. Pinuum and Fomes Hartigii. Notwithstanding the vastly different host, it seems the same as Fomes robustus in all characters. I think Fomes robustus is only known in Europe on oak and silver fir. In America the name does not figure in our literature, being unknown to those who have worked here on the subject. It is not known to me east of the Mississippi. A form (called Fomes Bakeri) is said to be quite common on birch in Minnesota regions. From Texas I have seen the type form of Europe on mesquite (and referred in error to Fomes texanus). I have it from California, H. S. Fawcett, on Eucalyptus.

The foreign specimens I have are from Australia, Hawaii, and Japan. A few have setae and spores a shade larger (8-9 mic.), but otherwise are exactly the same as the European form. Compare Fomes setulosus in Section 70,

ILLUSTRATIONS.—Hartig, Zersetz. d'Holzes t. 7, (as Polyporus fulvus in error). In his Diseases of Trees, this is referred to as Polyporus Hartigii).

SPECIMENS.—Many from Europe, mostly from France, on oak; also from Alpine regions, on the silver fir. I have seen none from England. From United States, only California. H. S. Fawcett, on Eucalyptus; Hawaii, C. N. Forbes; Australia, A. G. Hamilton, on Eucalyptus; Japan, A. Yasuda.

Forms.

FOMES BAKERI is a form of Fomes robustus, very close in its bright rhei context color, spores, etc. (6-7 mic. rather than 5 mic., as described), and which differs only in its surface, which is smooth, subconcolorous, without the black, rimose crust of the type. Museum specimens are only known to me from the originals in Ellis' herbarium, and in my own, from C. F. Baker, Wisconsin. I am told by Prof. Harper it is common on birch in Minnesota.

NOTE.—The plant distributed by C. F. Baker, No. 54, on Betula, Los Pinos, Colorado, and determined by Underwood as Polyporus applanatus (sic), has same general appearance and surface as Fomes Bakeri, but differs markedly in context color, and in having abundant setae. I should refer it to Fomes pomaceus, although it differs slightly.

FOMES SETULOSUS.—Pileus ungulate, with a smooth, brownish surface. Context fulvous (tawny of Ridgway), hard, woody, the pore tissue a shade lighter than the context. Pores very minute, with brown mouths. Pore layers 2-3 mm. wide. Spores globose, hyaline, 8 mic. Setae very abundant, with thick bases, and abruptly contracted and slender points, projecting 12-14 mic.

We base this name on species received from Ceylon, which are close to Fomes robustus, and when received were referred as a setae-bearing form of it. On comparing the context color, however, I find it distinctly different, the difference shown in Ridgway's tawny and yellow ochre on plate XV. In addition, it has quite peculiar and very abundant setae, found but rarely, if at all, on the European plant. There seems to be an intermediate plant in Australia closer to the European plant.

FOMES TORULOSUS.—Pileus applanate, sometimes thin, an inch or less thick; other specimens are 3-4 inches thick. Surface when

young soft, pubescent, at length with concentric raised, soft ridges, often with an obtuse, inflated edge. Context color light brown (ochraceous tawny). Pores minute, the tissue concolorous with the context, but the mouths at first purplish, losing the color when old and becoming brown. Spores hyaline, globose, 4-5 mic. Setae abundant, large, projecting 16-20 mic.

This is rather a frequent plant around Paris on the oak, and was named by Persoon, who preserved several good specimens in his herbarium. It was not included in Fries' works, hence the tradition was lost in Europe, until I unearthed Persoon's specimens (cfr. Myc. Notes, p. 470). There are, however, at Paris and Kew specimens determined by Léveillé as Fomes torulosus, and he had it right. It had been rediscovered by Boudier and Quélet, who called it Fomes fuscopurpureus and Fomes rubriporus. While it is not rare around Paris, it not known in northern Europe nor as yet found in England. In the United States but one collection has been made, viz., by C. W. Edgerton, on live oak at New Orleans. (Cfr. Pol. Series, p. 48.) I have it from Japan, and it will probably prove to be more common in the tropics when the distribution is better known.

ILLUSTRATIONS.—Boudier Icones, t. 152, fine (as Fomes fuscopurpureus).

SPECIMENS.—Many from France. Outside of France, Tirol Bresadola; Austria, v. Hohnel; and Portugal, E. Torrend. None from England. From United States, Louisiana, C. E. Edgerton, only collection known (cfr. Pol. Ser. p. 48). Foreign, Japan, A. Yasuda; Madeira, Carlos A. de Menezes.

FOMES CONCHATUS.—Pileus usually thin, conchoid, with a sulcate, brown surface. Context light brown. Pores minute, concolorous. Setae numerous, slender, with bases slightly thickened, projecting 20-28 mic. Spores hyaline, globose, 4½-5 mic.

This is a frequent species on various, frondose woods, both in Europe and the United States. The microscopic features are similar to those of Fomes pomaceus, but it can be distinguished by its general shape. It is also close to Fomes torulosus, and sometimes hard to distinguish, though Fomes torulosus has darker pore mouths and darker, thicker setae. Fomes conchatus is usually a thin plant, and not badly named.

ILLUSTRATIONS.—None published. Britzelmayr's cartoon is not worth considering, and Quélet's colored caricature has no possible resemblance to it.

SPECIMENS.—Many in Europe and United States.

Compare Langloisii.

Forms.

FOMES SALICINUS.—Growing on willow, Fomes conchatus is usually subresupinate, or with a thick, imperfect pileate development. The context color is also darker. The miscroscopic features are the same. It is a host variation and difficult to clearly distinguish. The plant is more common on willow in Europe than in the United States.

ILLUSTRATIONS.—Karsten Icon. t. 1, fig. 5, is best. Fries t. 185 is too dark. Patouillard, fig. 141, and Quélet t. 17, fig. 6, both too poor to cite.

SPECIMENS.—Many, mostly from Europe.

Compare loricatus.

FOMES DENSUS.—There occurs rarely in the United States and Europe a thick, heavy form of Fomes conchatus, differing only in not being thin. Fomes conchatus is usually about a centimeter thick. This form is very rare and I have but three collections.

SPECIMENS.—United States, O. M. Oleson; France, F. Fautrey; Portugal, Moeller.

ILLUSTRATIONS.—Quélet, t. 17, fig. 5, is a crude cartoon intended to represent this thick form of Fomes conchatus. The shape is about right, but the color more resembles a carrot.

FOMES LAMAENSIS.—Pileus applanate, with a smooth, hard brown or black crust. Context bright orange yellow (close to Raw Sienna), contrasting with the dark crust. Tissue of two kinds of hyphae, having large, thick, darker colored setae like hyphae imbedded in the usual type. (See fig. 600, page 261.) Pores minute, darker than the context. Setae numerous, rather thick. Spores (?) hyaline, globose, 5 mic.

This is an abundant plant in the East and a number of specimens are at Leiden, collected years ago in Java. They were referred to Fomes igniarius. Cooke got it from Tonkin years ago and referred it for Bresadola to Fomes marmoratus (sic.). Recently the Philippine collectors have found it in quantity, and Mr. Murrill described it as a "new species" twice on the same page (Fomes lamaensis and Fomes Williamsii). A year later he referred it to Fomes endothius, to which it has no affinity. I am not sure it is a Fomes, at least I have not noted true Fomes forms. Nor am I sure of spores. I have never found them. Murrill records them as hyaline; Bresadola indicates that they are colored. The hymenial cells are hyaline and I think also the spores. The bright color of the context is a marked feature of this plant to the eye, and the "structure" is also unusual under the lens. Fomes melanodermus (in Section 76) is a very similar plant, but has abundant colored spores.

Compare Williamsii.

FOMES RHEICOLOR.—Pileus applanate, with a dark, smooth crust. Context bright rhei yellow (brighter than yellow ochre Ridgway), hard, woody. Pores minute, concolorous or a shade darker. Setae rare. Spores not found.

This is based on a specimen received from Leon Castillon, Argentine. To the eye it closely resembles Fomes lamaensis, and we at first thought it was the same thing. However, we do not find the two forms of context hyphae that are so characteristic of Fomes lamaensis, of the East. Nor do we know Fomes lamaensis in the American tropics.

B.—Context Dark Brown.

FOMES IGNIARIUS.—Pileus ungulate (often resupinate or subresupinate), with a hard, black, usually rimose crust. Context dark brown (Argus brown), hard, woody. Pores minute, with concolorous tissue, and brown mouths. Pore layers 1-2 mic. thick. Hy-

phae deeply colored. Subhymenial layer hyaline, cellular. Setae rare, with swollen bases, projecting 12-16 mic. Spores globose, hyaline, 5-6 mic., smooth.

Fomes igniarius in its type form grows common on the willow in Sweden, but is found on various frondose woods. In the United States it occurs often on ash. On the willow it often takes a resupinate form. It is more common in northern localities. There has always been confusion in Europe in regard to the identity of Fomes igniarius. Fries and Persoon were in accord, as shown by their specimens. Berkeley, however, never had clear ideas in regard to it. In early American work he referred Fomes rimosus to Fomes igniarius, and in England his Fomes igniarius was always Fomes pomaceus, a tradition that persists in England to the present day. As to the French, they have never had it right apparently, and of the four specimens I found so labeled at Paris all were Fomes robustus, and all specimens labeled Fomes igniarius were the form Fomes nigricans. Boudier's figure of Fomes nigricans is typically Fomes igniarius for me.

ILLUSTRATIONS.—Boudier, t. 155 (as Fomes nigricans); Sowerby t. 132 (rather light color); Bolton's and Bulliard's figures are both too doubtful to quote).

SPECIMENS.—Many from Europe and United States. From foreign countries, I have only one doubtful collection, from Australia.

Compare Haematoxyli, hyperboreus, inaequalis, Novae-Angliae, Pandani.

FOMES NIGRICANS.—With the same context color, spores, setae, it is in reality the same plant as Fomes igniarius, differing only in its host (usually birch), its smoother black crust, and the setae, which usually are more abundant. At the best, it is only a form with a smoother crust. It is frequent in Europe and in America is far more common than the type form.

Much confusion exists as to the plant meant under this name, whether a black form of Fomes igniarius or a black form of Fomes fomentarius. It seems that Fries confused them. His original description and citation seem to apply to Fomes fomentarius (black form), and in this sense is taken by Bresadola. His specimens, however, both at Upsala and Kew, are the black forms of Fomes igniarius, as above.

SPECIMENS.—I have a number so labeled, but it is difficult to draw a line between the type forms and the variety. I have one from S. Kawamura, Japan.

FOMES ROBURNEUS.—For me, this also is a form of Fomes igniarius, or rather of Fomes nigricans. It is exactly the same, excepting there is a slight resinous exudation on the crust and the setae are quite abundant. The pore mouths are strongly silvery, glancing. Until I unearthed the type at Kew, the identity of Fomes roburneus was entirely unknown to recent European authors. Little can be decided from Fries' writings. His Icones 184 has no resemblance whatever to his specimens, and I believe it represents Fomes roseus.

Fomes roburneus, in the sense of Fries' specimen, is a slightly laccate form of Fomes nigricans, and is very rare in Europe, and, to my knowledge, does not occur in America. The name must not be confused with Fomes robustus, a frequent plant in Europe.

ILLUSTRATIONS.—None published. Those cited in Saccardo are both errors. Fries Icones 184, notwithstanding it is from Fries, does not represent his specimen at all, and Brefeld 8, t. 9-11, is an excellent illustration of Fomes annosus, with not even the slightest suggestion of Fomes roburneus. Others cited are copies of these errors.

SPECIMENS.—I have only one typical, viz., from Ant. Weidmann, Bohemia.

FOMES BOREALIS.—Pileus ungulate, with a thin, pale, smooth, hard crust, variegated with darker spots. Context hard, dark brown (Amber brown). Setae slender, numerous, dense. Spores hyaline, globose, 6 mic.

I found this on the birch at Temagami, Ontario. It is closely related to igniarius and nigricans. The marked feature is the dense setae on the hymenium.

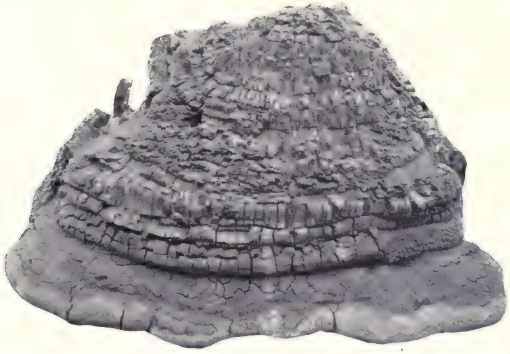

Fig. 590.

Fomes squarrosus.

FOMES SQUARROSUS (Fig. 590).—Pileus ungulate, with a black, rough, rimose crust. Context hard, dark brown (Antique brown). Pores minute, round, with concolorous mouths. Pore layers indistinct. Setae few, slender. Spores hyaline, globose, 4 mic.

This specimen was sent by Rev. James Wilson, Victoria, Australia, but the host was not stated. Mr. Wilson sends also a fine photograph (Fig. 590). When received I supposed it to be Fomes rimosus, also a common species in Australia, and the photograph would represent either species. The context color also is similar, but the microscopic character, as will be noted above, are entirely different. This is a large species, the photograph being reduced to about one-third.

FOMES ZELANDICUS.—Pileus applanate, with thin, brown, smooth, zonate crust. Context reddish brown (near Sanford brown). Pores small, concolorous, with velutinate mouths. Setae abundant, with slightly swollen bases, projecting 16 mic. Spores not found, doubtless white. Hymenial cells white.

I think this is known only from New Zealand and Pacific Islands. The surface reminds me of that of Polyporus licnoides. The fungus in its main features, setae and velutinate pore mouths, recalls Fomes senex.

Compare Höhnelii.

FOMES EXTENSUS.—Pileus applanate, thin, 4-5, mm. thick, with a thin, black crust. Surface brown, dull, with raised zones. Context dark brown, hard. Pores very minute, concolorous, not stratified (in the type). Setae short, thick, with swollen base. Spores hyaline, perhaps pale colored, globose, 4 mic.

The type at Paris from Guadeloupe is all that is known to me. It closely resembles thin species of Fomes senex, but the spores are hyaline, and the setae of a different type. Murrill refers many collections from the West Indies to Fomes extensus which should have been referred to the species he "discovered" Fomes pseudosenex.

SECTION 71. CONTEXT BROWN. SETAE, NONE. SPORES COLORED.

A.—Context Light Brown.

FOMES RIMOSUS.—Pileus unguliform, with a black, rimose surface, usually very rough, no distinct crust. Context bright yellow brown (Raw Sienna). Pores minute, hard, annual layers 3-4 mm. thick. Pore mouths concolorous, when young velutinate to touch. Hyphae deep bright yellow. Setae, none. Spores globose, deeply colored, 5 mic.

The early history of this species is obscured by having been confused by its author (cfr. Fomes scabra). However, it proved a frequent species in many countries, and has been generally known to all mycologists for years under this name. It is the plant so referred in Fries' work and mostly Berkeley's, Cooke's, as well as most American authors. It is most abundant in the United States on the locust tree (Robinia) in the Middle West. In the East there are sections where it is more rare. Although the locust is very common as an ornamental tree in Europe (known around Paris as Acacia), this Fomes is only known in Europe from one specimen, now in Upsala, collected by Fautrey in France. The disease has not become established on the locust tree in Europe as it has with us in America. Fomes rimosus occurs also in various tropical countries. We have seen specimens from Jamaica, Mauritius, South Africa, India, Samoa, Ceylon.

SPECIMENS.—Typical—United States. Many collections, it being the common Fomes on the locust tree.

South Africa—Dr. H. Becker, I. B. Pole Evans, W. T. Saxton. It appears common in South Africa and exactly the same as United States form.

Samoa—C. G. Lloyd. Rare in Samoa. Only one collection was made, which grew on a large liane of the Leguminosae family.

New Caledonia—Specimen from Museum, Paris.

Ceylon—Petch, 3596 and 3597.

DEPARTING FROM TYPE FORM.

Ceylon—Petch, 3598. Surface paler, not rimose. No. 2781, crust black and smoother and shape applanate.

New Caledonia—Ex. Museum, Paris. Context darker and shape more applanate.

Australia—E. C. Stirling. Shape narrow, ungulate, and pores slightly larger.

ILLUSTRATION.—Our figure 590 of Fomes squarrosus could also be used to illustrate this species. For the camera, they are both the same.

Compare Cedrelae, endotheius, ignarioides, Robiniae, rudis, tuniseus.

FOMES BADIUS is quite close to Fomes rimosus, and distinguished with difficulty. It has the same general appearance, shape, surface, context color, but on comparison the surface is smoother, the pores are a little larger and also the spores, which measure 6-7 mic. The pore mouths are darker and soft to the touch. It seems to be quite a common form in several countries. It does not figure much in literature, for it is usually referred to Fomes rimosus. The type is at Kew. Klotzsch labeled it as coming from British America, but it was certainly from the tropics, where it is a common species. It is also the same as Fomes rimosus as to the Mauritius specimens, and Fomes Pappianus of my recent determination. It is much too close to (typical) Fomes rimosus for comfort.

SPECIMENS.—India, Karachi, D. F. O. Jerruck. Very abundant collections and surely the most common Fomes in that locality.

Uruguay, Dr. F. Felippone.

Compare Pappianus, Underwoodii.

Fig. 591.
Fomes scaber.

FOMES SCABER (Fig. 591).—Pileus unguliform, with a rough, light brown, uneven surface. Context brittle, soft, light brown (Buckthorn brown). Pores medium, irregular, long, reaching the crust. Setae, none. Spores in great abundance, pale colored, 4-6.

This is known only from an old type (Tasmania) at Kew, and a recent specimen received by me from Rev. James Wilson, Australia. We believe our specimen is the same on comparison with type, though color of crust and context is lighter, perhaps due to old age of the type. The spores too of the type are more globose and of deeper color. In very ancient history this was determined as igniarius var. scaber, by Berkeley, from Tasmania. Then he confused it with another species from Mauritius some years later and called both Fomes rimosus. No additional specimen of the

"scaber" type seems to have been received in Europe, but the Mauritius "type" turned out to be a frequent species in many countries, particularly the United States and South Africa, and has become well established under the name Fomes rimosus.

SPECIMENS.—Australia, Rev. James Wilson.

FOMES NIAOULI.—Pileus unguliform, or thick, applanate, with dark brown or black, matted, tomentose surface. Context color dark brown (Argus). Pores minute, with concolorous tissue and darker brown velutinate mouths. Setae, none. Spores globose, 6 mic., deeply colored.

The original is from New Caledonia. The type is the same as Fomes rimosus in context color, spores a little larger, but if it has any value as a species distinct from Fomes rimosus, it lies in its surface characters. In another collection I have the context is darker, and this agrees with Fomes badius, except as to surface. It is compiled in Saccardo as Polyporus, due to Saccardo not being able to translate Patouillard's dialect.

SPECIMENS.—Cotype, from P. Hariot.

Compare Merrillii.

FOMES FASTUOSUS.—Pileus thin, ½-1 cm., sessile. Surface dark brown, dull, with raised zones, minutely velvety. Context yellow brown (Raw Sienna), hard. Pores minute, round, concolorous, or slightly darker, 2-4 mm. long. Hyphae deep yellow. Setae, none. Spores globose, 4-5 mic., deeply colored. Known to me only from the type at Paris from Singapore, and at Berlin specimens from the Philippines. Léveillé so named three specimens at Paris: the type from Singapore, no setae; from Iles Seychelles with setae, and which is Fomes senex; from Brazil a specimen which is Polyporus gilvus. Fomes fastuosus is a thin plant, perhaps a Polyporus.

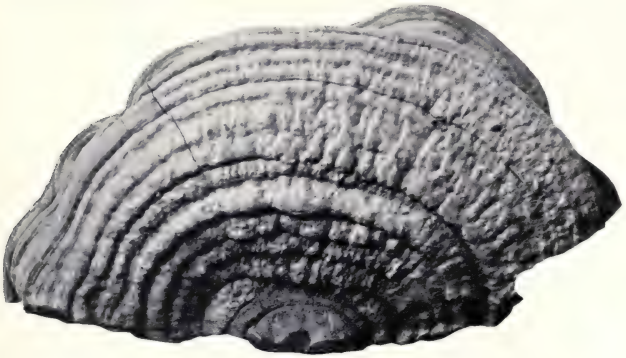

Fig. 592.
Fomes rhytiphloeus.

FOMES RHYTIPHLOEUS (Fig. 592).—Pileus applanate, with a hard, smooth, sulcate, pale crust. Context bright rhei. Pores minute, dark colored. Setae, none. Spores globose, colored, 4-5 mic., smooth.

This species, remarkable for its pale crust, bright colored context, dark pores, is known only from one old specimen in Montagne's herbarium. It came from Brazil.

FOMES JAVANICUS.—Pileus applanate, smooth (2 x 3 x 5 cm.), with a hard, black, rimose crust. Context bright brown (ochraceous-tawny), hard. Pores minute, with concolorous tissue, and stuffed mouths. Setae, none. Hymenial cells white. Spores (B) "flavidae," 3-3 ¾ x 4-5.

This was collected in Java recently, and referred to Fomes inflexibilis as a variety. I think it different from Berkeley's plant in black crust, much brighter context, and also spores (if they are yellow). I consider the spores of inflexibilis as hyaline. The only specimen I have seen is at Kew.

FOMES MINUTULUS (Fig. 593).—This is a small plant, with the same crust, context, and pores as Fomes fomentarius, and to the eye appears to be a small specimen of fomentarius. It is quite different, however. The fresh specimen has the pore mouths white, strongly glaucous. The spores in abundance are subglobose, pale colored, 4-5 mic.

Fig. 593.

The plants are small (about 2 cm. thick). Still it is not well named, for they are not really "minute," and there are several Fomes more "minute." Henning's named the plant from Africa, and it has been reported from Borneo. There are good, fresh specimens at Kew and Paris.

FOMES GLAUCOPORUS.—Pileus applanate, large, with a rough, sulcate, brown crust. Context pale brown (tawny olive), with concolorous pore tissue. Pores minute (⅛ mm.) with walls about the same thickness, in distinct layers, 2-4 mm. thick. Pore mouths white, glaucous when fresh, when rubbed, light brownish olive. Setae, none. Spores pale colored, subglobose, 4-5 mic.

This was quite a large specimen received from Henri Perrier de la Bathie, Madagascar. It is unusual in this section because of its pale,

brown, context color and glaucous pore mouths. I know no other similar species with brown context that has glaucous pore mouths, excepting the preceding. It is very close to Fomes minutulus as to its context, color, and spores.

B.—Context Dark Brown.

FOMES RIBIS (Fig. 594).—Pileus thin, applanate, (5-8 mm. thick.) Surface at first velvety, at length furrowed, uneven, with soft ridges. Context cinnamon brown. Pores minute, concolorous. Setae, none. Spores small, subglobose, 3 mic., colored.

Fig. 594.
Fomes Ribis.

Fomes ribis is quite a frequent species both in Europe and America on the garden species of Ribis. It usually grows imbricate, near the base of the plant. It occurs also on Euonymus and Lonicera in Europe, never in America, to my knowledge. There are records of it growing on Symphoricarpos in the United States. The Fomes on Euonymus and Lonicera have distinct names in Europe, Fomes Euonymi (generally spelled Evonymi in Europe) and Fomes Lonicerae. They have long been held to be the same as Fomes ribis. My observations are that the forms on Euonymus are usually of a brighter color than that on Ribis, but otherwise are the same.

ILLUSTRATIONS.—Although a common plant, it has been rarely figured. The old figures, Flora Danica, t. 1790, and Bulliard, t. 454, Fig. E, are both very inaccurate, if correctly referred. The figure of Corda in Sturm's Flora, Vol. 3 t. 62, is the only good one I have noted.

SPECIMENS.—Many, Europe and United States.

Compare Evonymi, Langloisii, Lonicerae, versatilis.

FOMES PECTINATUS (Fig. 595).—Pileus thin, rigid, applanate, 2-4 mm. thick, usually irregular, with the pore layers developing in imperfect layers. Surface with soft, tomentose, concentric ridges. Context cinnamon brown, bright color in fresh specimens. Pores minute, with mouths concolorous. Setae, none. Spores small, 3½-4, colored.

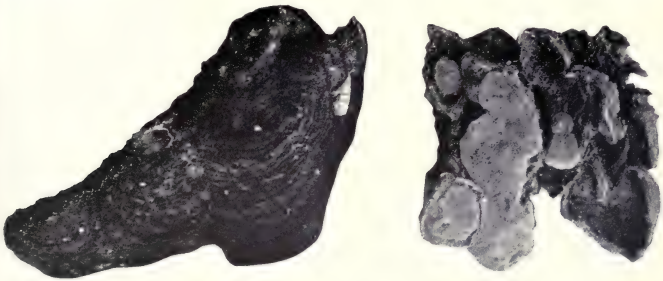

Fig. 595.
Fomes pectinatus.

A frequent plant throughout the tropics. There was more truth in Fries' reference than he supposed when he referred Quélet's figure of Fomes ribis to Fomes pectinatus, for Fomes pectinatus is in reality the tropical form of Fomes ribis. It is thinner and more irregular, but in all its essential characters is the same. Where the European compilers are in error is when they represent that both grow there. In the American tropics the plant otherwise the same, is of more regular growth than in the East. This was called Fomes subpectinatus by Murrill, and recently distributed by Rick as Fomes capucinus.

ILLUSTRATIONS.—None published. Quélet, Vosges, t. 17, fig. 5, (cited in Saccardo) is a mere daub and represents nothing. It was called Fomes conchatus by Quélet; was referred to Fomes pectinatus by Fries, which was the source of the Fomes pectinatus delusion in European mycology. It was based on Fomes ribis.

SPECIMENS.—Madagascar, Perrier de la Bathie (five collections); Brazil, Rev. Rick (four collections); Ceylon, T. Petch.

Compare Bonianus, crocitinctus, Hasskarlii, Langloisii, lilliputianus, subpectinatus, verruculosus, versatilis.

FOMES PULLUS.—Pileus small, thin, rigid, applanate, usually about 1 cm. in greatest diameter. Attached by a reduced base. Surface tomentose, with thin, narrow, tomentose ridges. Context and other characters as in Fomes pectinatus.

This might be held as a small, regular form of Fomes pectinatus, with which it agrees, excepting its small size, regular form, and separate manner of growth. It was originally from Java, collected by Zollinger and named by Montagne. Cotype collections (Zoll. No. 1000) are in most museums.

SPECIMENS.—Madagascar, Perrier de la Bathie.

FOMES JASMINI (Fig. 596).—Pileus small, about 5 mm., often scutellate, irregular. Surface minutely tomentose. Context and other characters as Fomes pullus.

Fig. 596.
Fomes Jasmini.

A very little species which is rare, growing, as far as known, only on the Jasmine in Southern Europe. It is quite close to Fomes pullus of the tropics. It was named by Quélet in his last paper and not included in his Flore. It is compiled in Saccardo as a variety of Fomes pectinatus.

SPECIMENS.—Portugal, Rev. Torrend; France, H. Bourdot.

FOMES McGREGORI.—Pileus semiresupinate, with reflexed, narrow pileus. Surface sulcate, zoned, pubescent brown. Context hard, dark brown (Argus brown). Pores minute, concolorous, with dark mouths. Setae, none. Spores elliptic, colored, 3 x 5.

A recently-named species from the Philippines and only known from types. It is quite close to Fomes badius as to context color and pores. Differs in its smaller, elliptical spores and subresupinate habits.

SPECIMENS.—Cotype, E. D. Merrill, Philippines.

Compare aulaxinus.

FOMES DEPENDENS (Fig. 597).—Pileus narrow, ungulate, attached behind. Surface dark, rough, sulcate. Context dark brown (Argus brown), hard. Pores minute, in many layers, tissue concolorous, mouths paler with a glancing effect. Setae, none. Spores globose, colored, 4 mic.

This is a marked species of the American tropics. It is very hard and heavy, and seems to be characterized by its shape and attachment. There are collections at New York from the West Indies, and I have one from Brazil. The plant is quite close, if not the same, as Fomes Caryophylli of the East.

SPECIMENS.—Brazil, Madame Anna Brockes.

FOMES CARYOPHYLLI.—Pileus ungulate or subresupinate, with a hard, black, smooth, slightly sulcate crust. Context hard, cinnamon brown. Pores minute, round, with distinct annual layers. Setae, none. Spores abundant, globose, colored, 4-5 mic.

Though recently named (as Trametes Caryophylli), this appears to be a common species in Africa and the East. It was named by Raciborski, a Russian writer on parasitic Java plants. The recent

Fig. 597.
Fomes dependens.

pores when fresh are deep (Argus) brown, but they soon seem to fill with hyaline hyphae and become much paler, and this seems to be a constant character. In Java all collections I have seen are mostly small, an inch or two thick, but I have it from Mauritius three or four inches thick.

SPECIMENS.—Ceylon, T. Petch (three collections); Java, sent by Bresadola; Mauritius, P. Koenig; Japan, A. Yasuda.

The Mauritius specimen, 4 inches thick, is much larger than those from Ceylon or Java. The Japanese specimen is to me somewhat doubtful. It is thinner, and the pores show no evidence of changing color with age, as they do in all my other collections.

FOMES PSEUDOSENEX.—Pileus applanate (2-3 cm. thick), with a hard, rough, irregular, sulcate, black surface. Context reddish brown (Argus brown), hard, rigid. Pores minute, hard, concolorous, in many distinct, narrow layers, with narrow layers of context often interposed. Setae, none. Spores globose, deeply colored, 4 mic.

The species is one of the hardest, heaviest, rigid Fomes. Several collections are known from Cuba and Central America. Montagne confused it (from Cuba) with Fomes senex (from Chile), and the specimen from Cuba was the one he sent Fries as Fomes senex. I am at a loss to explain how Fries could see any relation between it and Fomes graveolens, but he did, and his passing remarks evidently led Cooke to class Fomes senex in section "Merismoidea, with pilei emanating from a common trunk or tubercule," where it is found to-day in Saccardo, Vol. 6. It has not even the most remote suggestion of any such pileate development. Smith collected it in Central America and sent it to Ellis, who had it determined in Europe (as Fomes senex), evidently on comparison with Montagne's Cuba specimen. There is no evidence that Murrill knew what Fomes senex was. He renamed it as a "new species" from the Philippines. But he probably judged on general principles that Ellis' specimen was misdetermined, so he renamed it Fomes pseudosenex. The only relation it has to Fomes senex is the confusion with it.

The specimen Montagne sent Berkeley as Fomes senex was not the Cuban collection that he sent Fries, and Berkeley's determinations of Fomes senex are mostly right. When Berkeley got Fomes pseudosenex he referred it to Fomes rhabarbarinus, or rather misreferred it, for microscopic characters are quite different. Murrill, in addition to naming it Fomes pseudosenex, referred most of the specimens he got to Fomes extensus.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie.

FOMES HYDROPHILUS.—Pileus small, with a brown, rugulose, sulcate surface (context dark brown). Pores small, with a noticeable sheen on the mouth. Spores abundant, subglobose, 4½-5, deeply colored. Setae, none.

A light-weight species, represented at New York by one abundant collection from Jamaica. I have none of the type, hence I am unable to compare its context color and have only scanty notes on the species. I was impressed, however, that it is a good species, and that its most prominent character was its very light weight.

FOMES TEPPERII.—Pileus ungulate, with black, rimose surface. Context dark brown (Russet). Pores large, long, seemingly not stratified. Setae, none. Subhymenial cells forming a thick layer. Spores are many, subhyaline, 6-7 mic., globose; few are deeply colored, same size and shape.

Fomes Tepperii, based on a single little specimen which I would not name were it not such a characteristic thing. The general appearance to the eye, the color and pores are those of Trametes pini, which, by the way, would be better as Fomes than Trametes, for it forms distinct pore strata. The varying spore colors of this plant demonstrate that having "colored spores" is not always a better character than any other one character.

SECTION 72. CONTEXT BROWN (ORANGE BROWN IN ONE SPECIES). SETAE PRESENT. SPORES COLORED.

A.—Context Light Brown.

FOMES YUCATENSIS.—This is similar in every particular to Fomes rimosus, excepting that it has setae. They are thickened at the base, and pointed. At New York there are specimens from Central America, and at Paris I have noted a specimen from New Caledonia (determined as Fomes rimosus), but which is characterized in the same way. Also from Africa, where it was called Xanthrocus rudis, it being the third time the specific name rudis was applied to an (alleged) Fomes.

Compare rudis.

FOMES SARCITUS.—Pileus applanate, rather thin, (1½ cm., with thin edge). Surface black, rimose, at length fibrillose, lacerate. Context bright brown (Raw Sienna). Pores minute, with concolorous tissue, but with darker, velutinate mouths. Hyphae deeply colored. Setae, rare. Spores small, 3-3½ mic., globose, deeply colored.

This species from the West Indies, type preserved in a jar at Upsala. It seems rare, at least there is no additional material in the abundant collection from the West Indies at New York. I have a collection from Trinidad, same on comparison as the type, but the spores are a little larger (4-4½ mic.).

SPECIMENS.—Thos. Langton, Trinidad.

FOMES OSTRICOLORIS.—Pileus large, hard, woody, with obtuse margin. Surface sulcate, black, rough. Context bright yellow brown (ochraceous-tawny). Pores minute, with concolorous tissue and dark purplish, velutinate mouths. Setae abundant, with swollen bases. Spores globose, pale colored, 3½ x 4.

This was received from Edouard Luja, Congo, Belge. In the grosser features it is very similar to Fomes torulosus, from which it differs in colored spores. The velutinate, dark purple pore surface is a marked feature.

FOMES RHABARBARINUS.—Pileus applanate, (5 x 6 x 1 inch), with a thick, hard, smooth, ridged, black crust. Context light yellow brown (near ochraceous tawny), hard, woody. Pores very minute, with concolorous tissue, but brown mouths. Setae, short, thick, projecting 10-12. Spores not found. (The hymenial elements are all deeply colored, and the spores are probably colored, though it is strange they are not in evidence.)

This is known from a single specimen at Kew. When Berkeley published it he overlooked the label (attached to the underside), and stated that it had no label and was probably from Brazil. The label (by Klotzsch) states it was collected by

Richardson. It was from British America, unless Klotzsch made a mistake, for he labeled it "No. 4, Richardson," and all Richardson's collections are from British America. I believe Klotzsch did make a mistake, and that this is a tropical species, just as I am sure that he made a mistake in publishing Irpex flavus as being from "Amer. Borealis Dr. Richardson." Irpex flavus is surely a tropical species only, and I believe this is. Berkeley afterwards referred quite different species from Cuba and Brazil to Fomes rhabarbarinus. (Cfr. Fomes pseudosenex.)

FOMES SANFORDII.—Pileus thin, applanate, with acute edge (about 1 x 3 x 3 cm.). Surface reddish brown, sulcate, with a hard, tomentum, separated from the context by a narrow black line. Context orange brown (Sanford brown), hard, about 2 mm. thick. Pores minute, darker than context, with concolorous mouths. Setae with strongly inflated bases. Spores subglobose, 3½ mic., colored.

We receive this from T. Petch, Ceylon. It has some characters in common with Fomes ribis, but differs from all species in this section in its distinct orange brown context.

SPECIMEN.—T. Petch, 3446, Ceylon, type.

FOMES RHAPONTICUS.—Pileus applanate (3-5 inches by 1-2 inches thick), with smooth, brownish surface. Context bright yellow brown (yellow ochre), with a peculiar, shiny effect and faintly zonate. Pores subconcolorous, minute, the indistinct layers 5-6 mm. thick. Setae rare, acute, with swollen bases. Spores subglobose, 8-10 mic., smooth, colored.

The context is not hard and lignescent as in most Fomes, and I rather suspect it is better classed as a lignescent Polyporus, related to Polyporus dryadeus. The distinct pore layers, however, can be distinguished, and hence it must be classed as Fomes, until at least we learn more of its life history. In general appearance, context color, and texture this is close to Polyporus dryadeus, an annual species of Europe with white spores.

SPECIMENS.—Jintaro Umemura, Mikawa, Japan (Type), G. Yamada, Japan. The specimen from Yamada has no annual layers, and would be called Polyporus. It has also darker context and surface than the type.

B.—Context Dark Brown.

FOMES EVERHARTII.—Pileus ungulate, with a black, sulcate, often rimose surface. Context hard, color dark, reddish brown (burnt sienna). Pores minute, in very distinct annual layers, 5-6 mm. thick. Pore tissue and mouths concolorous. Setae abundant, large, slender, 30-45 mic. Spores globose, deeply colored, 5-6 mic.

This is a frequent species, usually on oak in the United States. It occurs from the Atlantic coast into Southwest Texas and is quite abundant in the Southwest. The colored spores and setae readily distinguish it from all our other American species. It is only known from America, and I have never noted any specimens from tropical America. Ellis sent it to Cooke, who called it Fomes igniarius. In

describing it, Ellis referred it to his "new genus" Mucronoporus, based on the setae, but the idea does not seem to infect anybody else.

SPECIMENS.—Many from United States.

Compare praerimosus.

FOMES SENEX (Fig. 598).—Pileus applanate, sometimes quite large, with brown, rugulose surface without distinct crust. Context medium brown (Sedan brown). Pores very minute (100 mic.), indistinctly stratified, the tissue concolorous with the context.

Fig. 598.
Fomes senex.

Pore mouths darker brown, soft, velutinate to the touch. Setae very abundant, rather short and thick, projecting 12-14 mic. Spores scanty (hyaline when young no doubt), globose, 5 mic., deeply colored.

This species came originally from Chili, but is rare in American tropics, and is not represented in the abundant collections at New York made in the West Indies and other parts of tropical America. It is extremely common in Africa and the East, and particularly in Java. The spores have been described as hyaline or sub-straw color, but I have seen them deeply colored in the type, and others which I

took to be young were pale or hyaline. Some specimens have many spores. Still I have made many examinations without finding spores, and it is rare to note a species with colored spores that are ever scanty. The pore layers extend almost to the crust, with very little context. I have one collection from the Philippines with a distinct, dark purplish coat to the velutinate pore mouths.

Fomes senex came originally to Montagne from Chile (Bertero). Afterwards Montagne confused matters by so referring an entirely different plant from Cuba (compare Fomes pseudosenex), which he sent to Fries. Berkeley had some of the original, hence Fomes senex of Berkeley's determination was usually right. In recent years Murrill discovered it was a new species, Fomes subextensus from the Philippines. Bresadola calls it Fomes Korthalsii, and I have taken the types of Fomes Hasskarlii at Leiden to be this plant. The whole history has been a bad muss, which is a pity, since it is such a common and characteristic plant.

SPECIMENS.—Brazil, L. Damazio; Hawaii, C. N. Forbes; Samoa, C. G. Lloyd; Philippines, E. D. Merrill; Ceylon, T. Petch; India, H. C. Ryan; Java, Docteur van Leeuwen, J. P. Mousset, Dr. J. C. Konigsberger; Mauritius, P. Koenig; Madagascar, Henri Perrier de la Bathie; South Africa, I. B. Pole Evans, W. T. Saxton.

Compare Langloisii, Hasskarlii, subextensus.

Fig. 599.

Forms.

FOMES HAWAIENSIS.—Color bay, pore mouths 150 mic., otherwise as Fomes senex. Surely only a form, but of quite distinct color (bay) and pores one-half larger. Based on a collection from C. N. Forbes, Hawaii.

FOMES VELUTINOSUS (Fig. 599).—I have several times received a small, thin plant with the main characters of Fomes senex, but much smaller, thinner, and with but one layer of pores (Polyporus). I am not sure it is a Fomes, as my collections show no Fomes layers. Surface smooth, sulcate, often with a banded effect. Pore mouths darker and strongly velutinate.

SPECIMENS.—Bengal, S. Hutchings; Japan, K. Makanishiki, Kazegoti Island; Madagascar, Henri Perrier de la Bathie; India, Col. H. R. Kirtikar; Natal, Africa, A. J. T. Janse.

FOMES PACHYPHLOEUS.—Pileus ungulate, with a hard, smooth, uneven brown or black crust. Often the crust is variegated with darker zones. Context hard, medium brown (Sedan brown). Pores minute, with indistinct pore layers. Setae short, with broad bases. Spores rare, globose, 8 mic., pale colored. The tissue of the pore walls and context is mostly of the usual ligneous hyphae, slender, 2-4 mic. thick, colored, but imbedded in this tissue, of much darker color and running parallel with the pores, are prominent, deep chestnut-colored, smooth, sharp setae 8-10 mic. thick, with sharp points. These are quite conspicuous under the microscope and occur both in the pore and context tissues.

Fomes pachyphloeus was originally from Fidji, but is found frequently in Africa and the East. I have not seen it from the American tropics. Sometimes it

reaches a very large size. There is a specimen at Leiden from Java nearly eight feet in circumference and weighing over 20 pounds.

The large, thick, deeply colored setae-like hyphae that are imbedded in the tissue (Fig. 600) are the most remarkable feature of this plant, but were only referred to vaguely as "cystides volumineuses" in the original accounts, and it is only recently that special attention was drawn to them. I think they are mistermed as

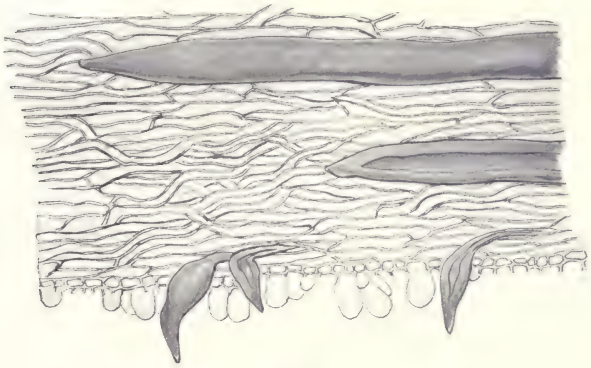

Fig. 600.

Section of pore walls of Fomes pachyphloeus (much magnified).

cystidia in any possible meaning of this elastic word. It is of quite peculiar "structure," but other species, Fomes lamaensis, Polyporus Chaperi, glomeratus, Rickii, and others have similar structure. Some day some bright savant will discover that this structure forms a "new genus." Prof. McGinty proposes for it the name Oxyuris.

SPECIMENS.—Philippines, E. D. Merrill; Mauritius, Chas. O'Connor; Madagascar, Henri Perrier de la Bathie.

Compare Elmeri.

FOMES MELANODERMUS.—Pileus ungulate, with a rough, hard, black crust. Context dark, brown (antique brown). Hyphae of two types, thick seta-like, darker hyphae imbedded in the lighter colored, thinner hyphae of the usual type. Pores minute, concolorous, in many distinct layers, 3-4 mic. thick. Setae rather thick, with thick bases. Spores abundant, globose, pale colored, 4 mic.

It appears to be rare, and is only known from Java. The only specimens I have seen are the one at Kew and the type in Patouillard's herbarium. It is very close to Fomes lamaensis and has same "structure," but differs in its abundant, colored spores.

FOMES LINTEUS.—Pileus applanate, thin (5 mm. thick), with brown, slightly tomentose surface, strongly sulcate, with con-

centric, raised ridges. Context thin, dark brown. Pores minute, with concolorous tissue and darker mouths. Setae very few, slender. Spores globose, 4-5 mic., very pale color.

This is known, I believe, only from the type at Kew from Nicaragua. The determinations at New York are in error, also Baker's distribution No. 2259, so determined by Burt, which is Fomes rimosus, with no remote resemblance to Fomes linteus. I am not even sure that linteus is a Fomes. It seems harder, but it is very close to Southern forms of Polyporus gilvus, and the type has no layers of pores. The "lime-white hairs" that clothe the pileus, according to Mr. Murrill's account, are quite noticeable by their absence.

FOMES CALCITRATUS.—Pileus applanate, with thin edge, with a hard, brown, smooth, sulcate crust. Context dark brown (cinnamon). Pores very minute, concolorous, with hard pore mouths. Setae rare. Spores (W.) colored, 5-6 mic.

This, I think, is known only from the type (Wright 816) from Cuba at Kew. At Paris and New York (also at Kew) Wright 264 (which is Fomes pseudosenex), is labeled as being Fomes calcitratus, and the account in N. A. F. was based on this mislabel.

NOTE.—Polyporus Caryophylleus from Brazil has been classed as a Fomes and would fall in this section. It has rare, colored setae and colored spores. I think it is better classed as a lignescent Polyporus. It must not be confused with Fomes Caryophylli from Java.

7TH GENERAL DIVISION—GANODERMUS.

The section Ganodermus of Fomes rests on the spore character. The colored spore has a hyaline membrane, which is large and projecting at the base beyond the colored endospore. This empty base usually collapses, then the spore becomes truncate at the base. In addition, the cortex is brown and the pores are always devoid of setae. This section in the broad sense, as used by Patouillard, is quite natural as far as spores and context are concerned. The name (as a genus) is coming into use in Europe in this sense, chiefly due to having been adopted by Bresadola, and is the only one of Patouillard's polyporoid genera that Bresadola recognizes. After struggling against it for twenty volumes, Saccardo finally succumbed in the twenty-first volume. In his previous volumes he had taken Ganodermus as a synonym for Fomes, which it is not, although a few Fomes are Ganodermus, and these alone are considered here under this head. The species of Fomes in this section are very puzzling. There is little microscopic difference. The spores are all very much the same, a little variation in size, but no more than is often observed in different spores of the same specimen. Two of the rare species have distinctly rough spores, but this helps but little, for the bulk of specimens have smooth or punctate spores. The context color is quite similar. The main difference is in the crust, which is quite marked in extreme forms, but runs together in such gradations that it is difficult to use as a character. In old times it was customary to call everything that grew in temperate regions in this section Fomes applanatus, and in the tropics, Fomes australis. It was a practical idea at any rate, even if most of the specimens could not be distinguished without the locality being known. In modern days the tendency is just the other way, and tropical species are based on indistinguishable characters that we are unable to follow.

Large numbers of tropical collections have been secured for our museum, and we have carefully worked them over and sorted them according to the most obvious macroscopic characters. The most prominent distinction is a marked difference in the relative weight.

One series, which we call Ponderosus, is heavy, hard, compact, with very minute, heavy pores, hardly visible to the eye. The microscope shows these pores 50 mic. in diameter, with thick walls 250 mic. (Fig. 601). This series only occurs in the tropics and is unusual there.

Fig. 601.

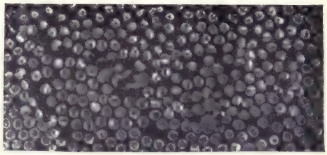

Fig. 602.

Section across the pores, (X 12)

The other series is light in weight compared with the preceding, we judge about one-third as heavy. It has thin walled pores 120 mic. in diameter, with thin walls, only 60 mic. (Fig. 602). It is the common and only series in temperate regions, but is also common in the tropics.

Most Fomes of this section Ganodermus do not have laccate crust, a character that is prevalent in the section Ganodermus of Stipitate Polyporus.

The color of the pore mouths has never been held of any importance in classifying this group of plants. Still the difference between plants with white pore mouths and those with yellow pore mouths seems to us of some importance. It is usually constant in every specimen of the same collection. They are either all yellow or all white. And it is also geographic. In Europe only one rare species, Fomes laccatus, has yellow pore mouths, and it is a constant character of the species. In the Eastern United States the commonest of all common species, Fomes leucophaeus, has white pore mouths. On the Pacific Coast most specimens we received have yellowish pore mouths, and in the tropics we get specimens with deep yellow pore mouths.

SECTION 73. FOMES-GANODERMUS.

A.—Pores with Thin Walls. Spores Smooth or Punctate.

FOMES APPLANATUS.—Pileus usually applanate, with a brown, rather soft crust when fresh. Context color dark brown (bay brown). Pores minute, with brown tissue and white mouths. Spores colored, obovate, 6 x 10, truncate at base, with smooth, punctate surface.

This is a frequent species in Europe, and in various forms is cosmopolitan, and usually the commonest Fomes in any locality. The type form in Europe has a pileus often large, 1-1½ foot in diameter and 2 to 4 inches thick. It has a brown crust, which in the growing plant is soft so that it can be indented with the finger-nail. The pore mouths are white, and amateur artists often etch by cutting the white surface, exposing the brown tissue beneath. Specimens of Fomes applanatus (and the form Fomes leucophaeus) often have the pileus covered with a dense coat of brown spores. It is somewhat a mystery how they get there. That they are in part conidial has been demonstrated by sectioning the pileus layers, and we have seen abundant conidial spores attached to the hyphae. They are exactly the same in every respect as the spores one finds in the pores. But that they alone can account for such abundant spores as one often observes is difficult to believe.

The early history of Fomes applanatus is somewhat obscure. Sowerby confused it in the text with Fomes fomentarius, and Persoon first lists it as a variety of Fomes fomentarius. Schweinitz determined the American form as being Fomes

fomentarius, and Berkeley confused it in all his works, a confusion that still exists in the English text-books.

In Europe Fomes applanatus in the type form with soft, brown crust is the usual form, though it grades frequently into the next form Fomes leucophaeus. In the United States and Japan the usual form is Fomes leucophaeus, though the type of Europe rarely occurs, and innumerable gradations are found. In the tropics Fomes applanatus often takes a form exactly the same as the European form, but generally the crust is hard and brown, and then it is classed as Fomes australis.

The shape of Fomes applanatus is generally applanate, but sometimes ungulate specimens occur. Sometimes layers of tissue are interposed between the pore layers, then it becomes Fomes vegetus, but this is a condition, not a species.

ILLUSTRATIONS.—Sturm's Flora, fasc. 14, t. 63 is good as to color, but of abnormal shape. The spores are also inaccurate. Gillet's figure is the best, though the context color is much too light. Bulliard, t. 454, fig. C, also good as to shape, but inaccurate as to context color.

SPECIMENS.—We have about fifty collections from Europe, but only six from United States that we so refer with white pore mouths.

Foreign, not distinguishable from the European plant. India, H. Val. Ryan: Japan, J. Umemura; Ceylon, T. Petch; Madagascar, Perrier de la Bathie; Australia, W. M. Carne, W. W. Froggatt: New Zealand, R. S. Robinson; Philippines, E. D. Merrill; Brazil, L. Damazio.

Compare gelsicolor, Lipsiensis, megaloma, rubiginosus, scansilis, vegetus.

Variations.—As to the crust, the plant varies in all degrees into Fomes leucophaeus, and no line can be drawn between them. The pore mouths are white. We have two collections from Europe with yellow pore mouths that, as to crust, should be classed with Fomes applanatus. They both grew on beech, however, and incline toward Fomes laccatus, excepting as to crust. Our California collections mostly have yellow pore mouths.

FOMES LEUCOPHAEUS.—Crust hard, pale or white, otherwise exactly the same in context color, pores, pore mouths, and spores as Fomes applanatus.

This is the common form in the United States and our most abundant Fomes. While most specimens have a hard, pale crust, often the crust is brown, and the type form of Fomes applanatus with soft, brown crust rarely occurs in the United States. In most of our literature it has been called Fomes applanatus. The type of Fomes leucophaeus, typical, as described with hard, pale crust is in Montagne's herbarium. Murrill perpetrated a farce by calling it Fomes megaloma (on the grounds of priority and a guess), which not only does not rest on any evidence, but is directly contrary to the evidence that exists (see synonym). Bresadola in his recent naming follows Murrill's mistake.

In Japan, the United States, and probably most temperate countries, except Europe, Fomes leucophaeus is more common than the type form, Fomes applanatus.

SPECIMENS.—We have over a hundred collections from the United States which are typical in having a pale, hard crust and white pore mouths, but only six from Europe that we so refer. Foreign, Australia, Miss E. Campbell; South Africa, A. J. T. Janse; Japan, J. Umemura; A. Yasuda.

Compare incrassatus, concentricus, megaloma, Stevensii.

Variations.—Of the many specimens of this common plant we have seen we have only four collections with yellow pore mouths. We hardly feel it worthy of a separate name, though we think that biologically it is not the same as the usual form with white pore mouths.

Normally, Fomes leucophaeus is sessile, but when growing from roots or some other abnormal position they develop fictitious stipes, as shown in Sturm's Icones, fasc. 14, t. 63. We have two collections with lateral stipes that evidently grew horizontal. As it extends South the tendency to produce stipe-like bases is more pronounced, and we recently collected a small form in Florida with strong disposition in this direction. Finally we have it from Brazil, with a slender and distant stipe, but another specimen of the same collection is subsessile.

SPECIMENS.—South America, Leon Castillon, F. Theissen, Gus. Peckolt, Rev. Rick; Bahamas, L. J. K. Brace. One from Rev. Rick has a small, slender, true stipe. The others are abnormally stiped, we think.

FOMES FASCIATUS (bis.)—Surface dull, marked with pale and brown zones, otherwise as the form leucophaeus. The spores of our Java collections are none of them truncate at base, the membrane seeming not so strongly developed as usual.

This is a tropical form, the name based on a misdetermination by Léveillé. We do not think an acknowledged misdetermination has any validity as a name, but use it as we know no other for this form. Formerly we took the original Fomes fasciatus of Swartz in the sense of Fomes marmoratus of this pamphlet, but that view has been disputed by Romell, and owing to the doubt we have abandoned it.

SPECIMENS.—Java, J. C. Koningsberger (two collections).

FOMES AUSTRALIS.—In a narrow sense, this is a tropical form of Fomes applanatus, with a thin context and long pores.

It is a time-honored custom to refer every Fomes of the section Ganodermus that came from the tropics to Fomes australis. Murrill varies the proceedings by calling it Fomes tornatus, but the idea is the same. In the sense of Fries (type at Kew) Fomes australis was based on a form of Fomes applanatus with thin context, hence had "praelong" pores, but on comparison with the type form in Europe, we find it is in other respects exactly the same. The "type specimen," however, does not agree with Fries' description where it was described as having a "shiny, laccate crust," but it is just the contrary. It is a mistake to consider that Fries had any definite species, distinct from Fomes applanatus which he named Fomes australis, or that any one else has had in connection with this name. Fomes australis is a convenient name to which to refer the tropical forms of Fomes applanatus, but we would restrict it to those that have thin context and long pores.

SPECIMENS.—The following specimens agree with the type in having "praelong" pores and scanty context, but that it is distinct from Fomes applanatus we cannot believe. Japan, A. Yasuda; Natal, A. J. T. Janse; South Africa, I. B. Pole Evans; Congo Belge, Rev. H. Vandegrift; Jamaica, Wm. Kirkland, N. Y. Botanical Garden; New Caledonia, Museum Paris; Philippines, E. D. Merrill; Argentina, Leon Castillon.

Compare nigricans, chilensis, testaceus, tornatus, scansilis.

FOMES OROFLAVUS.—A tropical form of Fomes applanatus with yellow pore mouths.

Fomes applanatus, in European and American forms, usually has white pore mouths. A quite frequent plant in the tropics, otherwise the same has deep yellow pore mouths. We have never seen but one specimen from Europe that approximates this tropical form. We have several collections from the United States (particularly California), which we refer to Fomes applanatus (and rarely to Fomes leucophaeus) that have yellow pore mouths, but they are not the deep yellow of the tropical plant.

SPECIMENS.—Australia, Rev. James Wilson; Hawaii, C. N. Forbes.

FOMES NIGRO-LACCATUS.—Tropical forms of Fomes applanatus sometimes have a slight, black, resinous exudation on the crust. Such we think should be called Fomes nigro-laccatus, the only suitable name for them.

We consider this according to the evident idea that Cooke associated with the name, that is, assuming that he had an idea. The technical "types" (cited) are now endorsed as being two species, neither of them Fomes nigro-laccatus. As Cooke named several collections Fomes nigro-laccatus when the name was appropriate, we feel he should be credited with correct application of his name, at least in those cases where he applied it suitably. Fomes nigro-laccatus in this sense occurs only in the tropics. There is a specimen at Kew, from Cuba, but most are from Africa. We have it (?) from Japan.

FOMES GALEGENSIS.—Very similar to Fomes applanatus as to pores, context, and spores, but has a hard, thick, smooth, black (cracked) crust. The specimen on which the species is based is in a cupboard at Paris. We have noted

other specimens of Fomes applanatus, determined as being Fomes galegensis, but none with the same crust feature of the type at Paris. We hardly think it possible to maintain it even as a form.

FOMES (?) RENIFORMIS.—Same as Fomes applanatus as to crust, context color, pores, but differs in being annual and forming new pilei each year. The spores are distinctly rough, in some specimens at least. Morgan observed a plant to be annual that otherwise seemed the same as Fomes applanatus, a perennial plant. It can be generally recognized by bearing the dead pileus of the previous year. Whether it is a distinct species or not is a question, and also it is a question if it should be classed as an annual form of Fomes applanatus. The spores are certainly in some specimens more asperate, but otherwise we doubt if the pileus alone could be told from the first year's growth of Fomes applanatus, the type form of Europe, and we do not know that the spore difference is pronounced enough to distinguish them. It is quite frequent around Cincinnati, usually on rotten stumps near the ground. As it occurs fresh the pore mouths are white, but we have a number of collections (including a "type" from Morgan) with yellowish pore mouths. We think these with yellow mouths are entitled to a name, but we do not propose one.

SPECIMENS.—Many, mostly of our own collection.

Compare lobatus.

Fig. 603.
Fomes laccatus.

FOMES LACCATUS (Fig. 603).—Pileus thick, applanate, with uneven, dark reddish brown, strongly laccate crust. Context dark brown (bay brown). Pores minute, long, with brown tissue and yellow mouths. Spores truncate, obovate 6 x 12, with punctate surface.

This is a European species unknown elsewhere. Except as to its thick, laccate crust, it is similar to Fomes applanatus, but the pore layers are thicker (1½ to 2 cm. thick), the pore mouths yellow, and the plant is evidently of rapid growth. It occurs only on beech as far as we know. It was not included in Fries' work, hence there is hardly a definite tradition concerning it in European mycology. I have not seen any of Kalchbrenner's specimens, but he gave a good name to it, Fomes laccatus, and a good description, excepting he described the spores as globose and hyaline, which was a slight discrepancy, considering it was Kalchbrenner. It is not a rare plant in England. Cooke distributed it years ago as Fomes applanatus, and Plowright sent it to Rabenhorst, who also distributed it. There is no evidence that Berkeley ever knew it. Quélet met the plant and sent a specimen to Fries labeled Fomes flaviporus, but it was never published under that name. His specimen also reached Cooke, labeled Fomes resinosus, attributed to Schrader's vague description, which does not entirely agree. Quélet so published it, and cites Rostkovius t. 34, an evident error. Bresadola at first followed Quélet, but afterwards described it as a new species Fomes Pfeifferi. We believe, on the sacred laws of priority, it should be called Fomes resinosus (Schrader-McGinty), it being the only plant in Europe that answers at all to the original "description" of this much-bandied species.

SPECIMENS.—We have about twenty collections, all from Europe.

Compare flaviporus, Pfeifferi, resinosus.

Fig. 604.
Fomes annularis.

B.—Spores Rough.

FOMES ANNULARIS (Fig. 604).—Pileus narrowly ungulate, pendant, attached by a reduced base. Surface with a hard, brown, smooth, not laccate, crust, with narrow, concentric, raised, annular rings. Context scanty, dark brown (bay brown), the pores reaching the crust. Pores minute, with brown tissue and white mouths. Spores 7 x 12, obovate, truncate, distinctly rough.

This species rests on one specimen (Fig. 604) from W. T. Saxton, Cape Town, S. Africa. In its pore color, crust, white pore mouths, it is closely related to Fomes leucophaeus, but the shape is unusual in the Ganodermus section of Fomes, and the distinctly rough spores, quite remove it from any form of Fomes applanatus. At Kew we note several specimens in the australis cover that seem to be similar, but we have not examined their spores.

Fig. 605.
Fomes Petchii.

FOMES PETCHII (Fig. 605).—Pileus compressed, ungulate, with reduced pore layers each year, 8 cm. in diameter, 5½ cm. thick, attached horizontally by a reduced base. Surface dark reddish brown, with concentric, raised zones, strongly laccate. Context scanty, pale brown. Pores long (5 cm.), almost reaching the crust, minute, with brown tissue darker than the context. Spores 8 x 12, obovate, truncate, distinctly rough.

This is based on a single specimen sent from Ceylon by T. Petch as "perennial lucidus." It is a true Fomes, and in our opinion is not a form of Polyporus lucidus. Judging from the annual layer, the

species is about twenty years old. These layers are 5-7 mm. thick at first and quite distinct, but are reduced both in thickness and area in later years, forming a peculiarly shaped, contracted pileus. This effect in this one specimen may be due to exhaustion of the food supply as the plant grows older.

SECTION 74. PONDEROSUS-FOMES-GANODERMUS.

Pores hard, heavy, minute, with thick walls (Fig. 601). Spores smooth or punctate.

FOMES SUBTORNATUS.—Pileus applanate, with a hard, rigid, black crust with brown surface. Context dark brown (bay brown). Pores very minute, hard, rigid, heavy, with thick walls. Mouths fuliginous. Spores 6 x 10, smooth, truncate.

This form was first clearly distinguished in Bresadola's work on Philippine fungi. It has a hard, rigid crust and dark, minute, hard, rigid pores, similar to the pores of Polyporus fornicatus and Polyporus mastoporus. The pore mouths are concolorous with the tissue. The young specimens sometimes show a slight black, laccate exudation, similar to that of Fomes nigro-laccatus. Originally it was described as having a short, lateral stipe, but specimens do not show it. The species is distinguished from the other Fomes of this section by the color of its pores and pore mouths, which are concolorous with the pore tissue.

SPECIMENS.—Philippines, E. D. Merrill (six collections); Madagascar, Henri Perrier de la Bathie (not typical); Java, J. P. Mousset; New Zealand, S. Duncan.

Compare piceus.

FOMES PSEUDOAUSTRALIS.—Pileus thick, applanate, with a thick, hard, black, shiny, sulcate crust. Pores very minute, hard, heavy, compact, in many layers, almost reaching the crust. Context and pore tissue dark brown (bay brown). Spores 6 x 10, smooth, punctate.

This is based on a Philippine collection, Curran 13748. It was referred to Fomes australis, but on comparison is quite different from the type of Fomes australis at Kew. The hard, heavy pores are similar to Fomes subtornatus. This answers the description of Fomes australis better than the type, but it is quite certain that it never grew in Europe, where Fries states australis occurs. This is probably the same as Fomes piceus, of which no authentic specimen is known to me.

Compare piceus.

FOMES POLYZONUS.—Pileus applanate, with a smooth, hard, pale crust. Context dark brown (bay brown), with narrow, regular zones 1½ mm. wide, and also with black layers of resinous tissue

imbedded, giving the effect of black lines in a section. Pores minute, hard, with yellow mouths. Spores 5 x 9, obovate, smooth, with many smaller, 4 x 6.

This was received by us from C. B. Ussher, Java, and at first we were inclined to refer it to Fomes leucophaeus, to which it is similar in crust and general appearance. The narrow context zones and paler context, as well as the interposed, resinous layers in the context and the minute, hard pores, are features never found in the common Fomes leucophaeus. I have similar plants from Java and Brazil, excepting that the context zones are not evident. Also a very doubtful collection from Madagascar, which, while the same as to pores and context, has a smooth, shiny, black crust.

SPECIMENS.—Java, C. B. Ussher (type), Dr. van Leeuwen; Brazil, P. Pio Buck (not typical); Madagascar, Henri Perrier de la Bathie (very doubtful).

FOMES KONINGSBERGII.—Pileus applanate, thin, 2-3 cm. thick, mostly reduced to the base, and most specimens have a false stipe-like base. Surface smooth, uneven, nonlaccate, varying from pale brown to fuliginous. Context dark brown (bay brown), with layers of imbedded, resinous tissue. Pores minute, with thick walls, hard, heavy. Pore mouth white. Spores 6 x 10, smooth.

A single, but very abundant, collection was received from Dr. J. C. Koningsberg, Java. We referred it with doubt to Fomes leucophaeus (cfr. Letter 38). We sent it to Europe and it was referred to Polyporus gibbosus, of which nothing is known excepting Nees' figure. To us it has no resemblance to that figure. It appears rare in Java, at least we have seen no others than the type.

SPECIMENS.—Java, Dr. J. C. Konigsberg, a very abundant collection (type).

SECTION 75. STIPITATE FOMES OF THE SECTION GANODERMUS.

In our pamphlet on the Stipitate Polyporoids we took the ground that there were no truly stipitate species of Fomes. Specimens we had seen we referred to sessile species, believing them to have accidental stems. We have received several specimens from the tropics that certainly have normal stems, and we are convinced that it is a good specific character. In one species from Java both stipitate and sessile specimens occur, but that does not necessarily void the value of the character.

Should we revise the subject, we would make this Section 75, the second section of stipitate polyporoids.

FOMES TESTACEUS.—Pileus with a lateral, deformed stipe. Crust smooth, not laccate, castaneous brown, variegated, zoned. Context bay brown. Spores minute, with white pore mouths. Spores 6 x 10, smooth.

We use the name in the sense of Patouillard to avoid inventing a new one. In the sense of Léveillé, the "type" has no stipe, and we believe it to be only the usual tropical form of Fomes applanatus. We have three collections that we refer here—our own, Samoa, Machardo, Perak, and Rev. Rick, Brazil. The two former have

deformed stipes, but that from Rev. Rick has a regular well-developed stipe. The context and surface are much like a brown form of Fomes applanatus. Neither of my three collections is a true Fomes, but the Eastern ones appear to be of this nature. The Brazilian specimen has narrow spores, 5 x 12, and is probably a different species.

SPECIMENS.—Perak, M. A. D. Machardo; Samoa, C. G. Lloyd; Brazil, Rev. J. Rick, the latter probably distinct.

FOMES ZONATUS.—Pileus applanate, sessile or often with a lateral stipe. When young, with a bright coppery brown, laccate, smooth, often sulcate surface. Context soft, of light weight and texture, dark bay brown color, with narrow zones. Pores minute, with brown context and pale, slightly laccate mouths. Spores 6 x 10, truncate, smooth, punctate.

This is a most abundant species in Florida, always growing on Cabbage Palmetto trunks. It is remarkable for the soft, light texture. Sometimes it is distinctly stalked with a lateral stem, at other times sessile with a broad attachment. Many species in the section Ganodermus have a resinous exudation on the crust, but this is the only one known to us where it extends also to the pores. The outer pore mouths, to the extent of a half inch, are often covered with a thick layer of laccate exudation.

While this is a most abundant species on Cabbage Palmetto in Florida, it was not named until recently, and then the deficiency was made up by giving it three names. We sent it to Ellis years ago, who referred it to Polyporus lucidus. Murrill named it Fomes zonatus, and at the same time Fomes sulcatus. Saccardo changed the latter to Fomes aratus, an unnecessary change, as the same species had been called also Fomes zonatus.

Compare aratus, sulcatus.

ADDENDUM.

The following species were overlooked when the body of the pamphlet was written at Kew. We have in our collection a number of unnamed specimens, and I believe a number of unnamed species, but they will keep, and the subject will be more clearly presented by not being embarrassed with too many "new species." We would rather get the "old species" settled first. As additional specimens are received, and we get more light, it is probable that our views may change as to some of these collections, and we would prefer to change before, rather than after, publication. We have therefore in the body of the work only proposed a few new names where the differences were strongly marked.

The species of Europe and America stand out quite clear, owing to the abundance of collections that we have. Also, I believe those of the American tropics are mostly well known, due to the ample collection in the New York Botanical Garden, but from the remainder of the tropics, and from Japan and China, Australia, Africa and the East (excepting the Philippines) all classes of fungi, and particularly the Fomes, are but partially known.

We have received a liberal sending of Philippine specimens from E. D. Merrill, which affords a new species named in mss. and additional light on several of the old species.

SECTION 59. CONTEXT ISABELLINE.

FOMES FUSCO-PALLENS.—Pileus ungulate or applanate; with hard, dark, rough crust. Context hard. Pores minute, round, 2-3 cm. long, tissue isabelline near the mouths, but darker fuliginous above. Cystidia, none. Spores globose, 4-5 mic., hyaline (or seemingly very pale color).

This was received from the Philippines Nos. 3693 and 11352, named in mss. by Bresadola. It was not published in either of his Philippine lists. The tendency of the pore tissue to become darker is a feature of Fomes hornodermus, and the two species are related in other respects.

SECTION 67. BICOLORIS.

FOMES GRAFFII.—Pileus applanate, sessile, (3 cm. thick) with a hard, rugulose, brown crust. Context pale isabelline, yellow when moist, hard, ligneous. Pores dark brown, minute, 1½-2 cm. long, hard, with brown pore mouths. Spores globose, deep colored, 14 mic., smooth.

This is the third Fomes that has reached me belonging to the peculiar section with pale context and dark pores. All three of them in macroscopic characters are about the same, and to the eye alone would be held as the same. But the spores are very different as follows: Fomes sculpturatus, Madagascar—Spores elliptical, 14 x 20, pale colored, with sculptured surface. Fomes mirabilis—Straits Settlements—Spores small, globose, 7-8 mic., pale colored. Fomes Graffii, Philippines—Spores large, 14 mic., globose, deep colored. We have a feeling that it is a spore variation of same species, but we can not prove it and we would not assert it.

Fomes Graffii reached me labeled "Ganoderma bataanense" No. 19097, province of Bataan, collected by P. W. Graff. This was originally published as Amaurodermus, and, in my opinion, should have been so left. It was compiled in Saccardo as Ganodermus. I do not know Amaurodermus bataanensis excepting by description, which differs from this specimen in almost every point, and, besides, it is surely not a Fomes.

SECTION 69. CONTEXT BROWN, SPORES HYALINE. SETAE ABSENT.

FOMES YASUDAI (Fig. 606).—Pileus ungulate, (3-4 inches) with smooth, uneven, annular, sulcate, light brown crust. Context light sagal brown, scanty. Pores very minute, in annual layers 2-3 mm. thick. Pore tissue cinnamon, paler than the context. Pores subglobose, hyaline, 3½-4 mic. Setae none.

Based on a specimen (No. 8) from A. Yasuda, Sendai, Japan. Strongly marked by the narrow, annular, sulcate rings of the surface caused by the overlapping annual growths. There are a few narrow layers of context interposed between some of the pore layers, and as these are absent between most of the pore layers, it is due no doubt to seasonal conditions, and probably represent wet seasons. As to

texture and context color, the plant is very close to Fomes robustus of Europe (cfr. page 242), which never in Europe nor in other countries, as far as I have noted, has this peculiar annular, sulcate surface. The spores are much smaller than those of Fomes robustus, and the plant has no setae.

Fig. 606.
Fomes Yasudai.

FOMES ODORATUS.—Pileus ungulate, thick, hard. Surface dull, minutely villose, uneven by the overlapping growths. Context hazel brown. Pores small to medium, with thick walls, with the hymenium lining the pores lighter than the context. Setae none. Spores 4 x 8-10, cylindrical, hyaline. Odor when fresh strong, fragrant.

This is not a rare plant in Europe on spruce, but it does not occur in the United States. Our records are all in error. It is quite close to Fomes pini in shape, size and texture, in its context color, the contrast between the color of the pore lining and the context, and in a less degree in its odor, for Fomes pini is said to have a "weak odor" when fresh. The pores are smaller, the surface is different, but the most marked differences are the absence of setae on the hymenium, and the spores. When fresh the growing pores are bright

yellow, which one would hardly suspect from the dried specimen, for they become brownish with age. Though quite familiar with museum specimens, I did not recognize it at first and the only time I ever collected it. The distribution is peculiar, fairly frequent in Europe, absent from the United States, and it occurs in Japan. Fomes odoratus is generally known as Trametes odorata, and the reasons for the change are stated under Fomes "Trametes" below.

Illustrations.—There is no good colored plate. Schaeffer, t. 106, is supposed to represent it; but if so, very poor.

Specimens.—A number from Europe. None from the United States. One from Japan, J. Umemura.

NOTE.—Trametes odora is an unfortunate name in our literature, for it is liable to be confused with a real name, "Trametes" odorata. Trametes odora is supposed to be white, and similar to Trametes suaveolens, excepting in having minute pores. It is current in the traditions of England and W. G. S. measured its spores, but I doubt if any one ever saw a specimen. Patouillard also gives a drawing of it with white context and brown pores. It requires more faith than I have to believe that there is any such species.

SECTION 70. CONTEXT BROWN. SPORES HYALINE. SETAE PRESENT.

FOMES PUTEARIUS.—Pileus thin, conchate, with deep brown surface lighter on the margin. Often it is resupinate or with reflexed margin. Context color, light brown. Pores minute, concolorous. Setae slender. Spores hyaline, globose, 6-7.

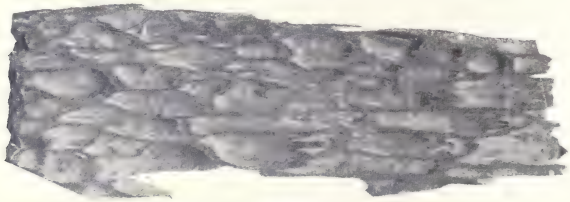

Fig 607.

Wood rot caused by Fomes putearius.

This is very close to Fomes conchatus, so close that I was at first dubious as to its difference. It differs, however, in its host and it produces an entirely different "rot." The spores slightly larger, the spines fewer, and the surface with a slight resinous appearance. It is known only from our Western States on various species of acerous trees. It produces a characteristic rot (Fig. 607) full of pockets. It was named and figured in J. A. R. Vol. 2, 1914, by James R. Weir.

SECTION 70. FOMES "TRAMETES."

There are two perennial species which have been classed (in error) in Trametes that should be transferred to Fomes. These are the two species generally known as Trametes pini and Trametes odorata. We dislike to propose a name change for plants as well established and as generally known as Trametes pini, but as they are classed as Trametes from a mistaken idea of their characters, they should be corrected. Fries had the impression that they did not have stratified pores "sed nulla strata distincta," and for that reason put them in Trametes. This is a mistake. The pores are as distinctly stratified as any other Fomes (Fig. 608), and there is no reason why they should not be classed as Fomes.

FOMES PINI (Fig. 608).—Pileus ungulate, thick, hard, woody. Surface dark brown, rough, tomentose, with concentric raised zones. Context and pore tissue Sudan brown. Pores (Fig. 609) large, round, elongated or sometimes daedaloid, 1-3 mm. in diameter. Pore layers distinct in old specimens. Hymenium tawny, the pores lighter, more yellow than the context. Setae slender, sharp, large, projecting 30-40 mic. Spores globose, hyaline, 5-6 mic.

Fig. 608.
Fomes pini.

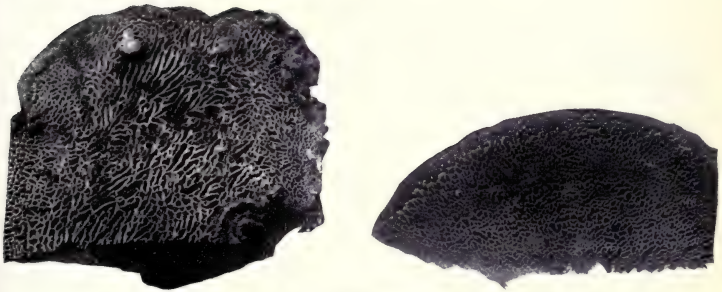

Fig. 609.
Pores of Fomes pini.

Hartig gives an excellent account of this well-known and destructive disease of pine trees. It occurs more common in Northern Europe and our Western States, though it is found no doubt in all pine regions. It is usually found on old trees and generally at some

height from the ground, for the tree is always infected originally through some wound, like a broken branch. I have never noticed it on trunks in woods, but have collected it on trunks in park at Upsala and around Berlin, where the trunks are more liable to injuries. It is not often found on young trees, because the wounds on young, vigorous trees are more quickly protected by a coating of turpentine. In Europe, in addition to the Scotch pine (Pinus sylvestris), which is its most common host, it occurs also on spruce, larch and the silver fir. In this country on various species of coniferous trees.

There is a tradition handed down from Fries that the pores do not form distinct strata "sed nulla strata distincta," but that is a mistake. The strata are quite distinct and the plant is a Fomes. The young pores are lined with a yellowish hymenium which is noticeable to the eye. The old pores fill up with tissue the same color as the context, hence might be taken for the context. The young growing tissue is yellow, but it soon changes to brown, and rarely specimens are seen with any part yellow.

Illustrations.—Boudier, t. 161 is so perfect that it is not worth while citing others. Sturm, fasc. 17, t. 50 is very good, however, as to color. Patouillard, page 101, fig. 5, as Xanthochrous, which is supposed to mean "yellow spores," and not very applicable to a plant like this (or several that he includes) with hyaline spores.

Specimens.—Many from Europe and United States and Canada. None from foreign countries.

Compare Fomes odoratus in Section 69, page 273.

The following two plants we consider here from their evident close relationship to Fomes pini. They are classed as Trametes, which they are technically, I believe, for I do not know that they ever form layers of pores. Still I think they are better Fomes, from their woody texture and relationship, but I do not propose to change their names.

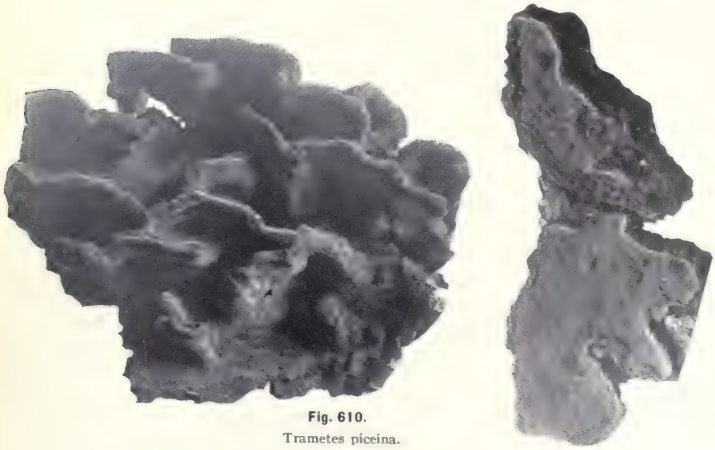

Fig. 610.
Trametes piceina.

TRAMETES ABIETIS.—Pilei thin, imbricate, often entirely resupinate or with a reflexed border. The large daedaloid pores (Fig. 609) and other characters are exactly as in Fomes pini, of which I consider it only a thin form. It occurs in northern Europe, and has been confused with Trametes piceina of the United States. Our figure (610) can be taken to represent it, excepting as to size of pores.

Specimens. Sweden, C. G. Lloyd.

TRAMETES PICEINA (Fig. 610).—Pileus thin, often imbricate, woody, 1-2 inches broad, often resupinate with reflexed margin. Surface tomentose, sulcate, zones, dark. Context Sudan brown. Pores small, 3-4 to a mm., round, regular, appearing hiascent and irregular when growing in an oblique position. Hymenium yellow when fresh, becoming brownish. Setae numerous, slender. Spores globose, 5-8 mic., hyaline.

This is a frequent species on the spruce in our Northern States. Von Schrenk records it on various coniferous trees (in addition to spruce) and states that it causes a common and destructive disease in our northern forests. He considers it same as Trametes Abietis of Europe as a variety of Fomes pini, but our American plant with its (usually) minute pores is well distinct and worthy of a separate name. We have two collections, however, that have larger pores which rather invalidate the argument. The plant was named by Peck as Polyporus, afterwards changed to Trametes, and was compiled in Saccardo as Polystictus (sic).

Specimens.—Many from H. D. House, State Botanist of New York, also several other collectors, all from Canada or our Northern States. Mr. House sends also some cotype material. We have eighteen collections, all with minute pores except two.

SECTION 71. CONTEXT BROWN. SPORES COLORED. SETAE PRESENT.

FOMES ENDOTHEIUS.—As this is exactly the same plant as Fomes rimosus, excepting smoother crust, I had supposed the type of endotheius at Kew was the same as Fomes rimosus, the surface not rimose, due to young condition of the specimens. Additional specimens, however, from the Philippines indicate that the surface does not become rimose, even when old. Hence Berkeley's species may be maintained on this feature. As to context color, pores, spores, etc., it is exactly the same as Fomes rimosus. It was discovered by Murrill to be a "new species," and called Fomes Merrillii.

FOMES FASTUOSUS.—Specimens recently received from the Philippines throw additional light on Fomes fastuosus (page 250) and Fomes pseudosenex (p. 255). They both have same context and spores. The former has but one layer of pores and context is lighter, but in the latter the darker context may be due to age. Fomes fastuosus may be a young condition of Fomes pseudosenex, but even should that prove true we would prefer taking Murrill's name, as Leveille had no definite idea in connection with his name and so-called three different species at Paris. We hardly think Murrill's idea was much more definite, but still he was not quite as bad as Leveille.

ADDITIONAL SYNONYMS.

Korthalsii, Java, Leveille. Type at Leiden is Polyporus sideroides (cfr. Letter 36). Leveille's naming at Paris, which is followed by Bresadola, is Fomes senex. Also most of specimens so named from Philippines.

SYNONYMS, MISTAKES, SPECIES IMPERFECTLY KNOWN OR NOT KNOWN AT ALL, ETC.

acupunctatus, Ceylon, Berkeley. Type is resupinate, fragments said to consist of three species.

Aegerita, Mexico, Fries. No type exists. Described as white with white, floccose context. Description would indicate Fomes Laricis.

albogriseus, United States, Peck. Based on a young specimen of Fomes Laricis.

albo-limbatus, Africa, Cooke. No type found by me.

albo-marginatus, Java, Léveillé. = Fomes kermes. The "white margin" is "remarquable" for its absence not only from the type at Leiden, but from all the many collections in the museums. It was thus misnamed through pure incompetency, and the maintenance of such a misnomer is, in my opinion, without merit.

Alni, Asia, Sorokin. No specimen seen nor the figure. I presume it was Fomes roseus or Fomes pinicola. Either of them is probably a bad guess.

angulus, Japan, Lloyd. Pidgin latin for Fomes angularis.

anisopilus, Java, Léveillé. Never was a "Fomes," but a thin Polystictus. (Cfr. Letter 36.)

apiahynus, Brazil, Spegazzini. Unknown. From the description it is impossible to tell even to what it is related.

aratus, United States, Saccardo. Change of Ganodermus sulcatus, which would not have been necessary had it been compiled in Vol. 21 instead of Vol. 17. It is a synonym for Fomes zonatus.

Auberianus, Cuba, Montagne. = Fomes lignosus. In the sense of early American mycology as determined in Europe for Langlois = Fomes geotropus.

aulaxinus, Java, Bresadola. There is a cotype at Kew. I cannot note how it can be distinguished from Fomes McGregorii.

balabacensis, Philippines, Murrill, = Polyporus pediformis.

bambusinus, China, Patouillard. This, as described, is a Polyporus rather than a Fomes, as compiled in Saccardo. It resembles closely Polyporus licnoides as to pores, color, setae, and spores. It bears colored, conidial spores of a different type from its basidial spores. I would consider it a species of Polyporus, closely related to Polyporus gilvus.

bistratosus, Brazil, Berkeley. Type a "resupinate" piece, a Poria.

Bonianus, China, Patouillard. Bresadola has referred this to Fomes pectinatus. I think the type in Patouillard's herbarium is not Fomes pectinatus, but Polyporus capucinus.

Brownii, Europe, Humboldt, = Fomes rufo-flavus, teste Bresadola.

brunneo-griseus, South America, Patouillard. Not seen by me. Flesh brown. "Spores hyaline, 5 x 6." Seems to belong to the fomentarius group.

Cajanderi, Siberia, Karsten. Unknown. Nothing can be inferred from the description.

caliginosus, Borneo, Cesati. The cotype at Kew is the same as caliginosus of Berkeley. Henning renamed Cesati's species (or rather Cesati's name) Fomes Cesatianus, which was hardly necessary.

canaliculatus, Java, Patouillard. Unknown to me. Compared by author to Fomes rufo-flavus.

castaneus, Europe, Fries. Unknown, name change of populneus of Pollini. The figure Pollini cited I have not located, but the description seems to be Fomes annosus.

Cedrelae, Jamaica, Murrill, = Fomes rimosus.

cereus, Brazil, Rick (No. 108 attributed to Berkeley). There is some error, as no such species was published by Berkeley. I would class it as a Trametes, and have labeled the specimen Trametes farcta. Its relations are with Polyporus gilvus.

Cesatianus, Borneo, Hennings. Change of caliginosus of Cesati, which being the same as caliginosus of Berkeley and having several other names, was hardly worth renaming.

chilensis, South America, Fries. The type at Upsala, all that is known to me, is a thin, subresupinate Ganodermus, about the same as usually called australis.

circumstans, Western United States, Morgan, = Fomes Ellisianus, as Morgan admitted, and for me = Fomes fraxinophilus. Morgan complained to me that Ellis published Fomes Ellisianus in a journal where a mycologist would not be apt to see it.

compressus, Australia, Berkeley, = effete Polyporus ochroleucus.

concentricus, Japan (alleged), Cooke. Known only from the type locality, and that locality not known. There is one collection with nothing to indicate the source except from Hooker's collection. It was published as coming from Japan, but as far as I have ever noted there were no specimens in Hooker's collection from Japan, and no indication that this was. It is close to Fomes leucophaeus, but with a variegated crust, the same pores, spores, and pore mouths. The context color, however, is much lighter (buckthorn brown).

contrarius, Brazil, Cooke. Type poor, appears to me to be probably subresupinate Fomes annosus.

Copelandi, Philippines, Murrill, = Fomes caliginosus. Cotype specimen at Paris.

Cornu-bovis, India, Cooke, = Fomes melanoporus.

crassus, Europe, Fries. Seen by Fries in the herbarium of Beyrich and supposed by Fries to be a lapsus. It is hardly worth obscuring the subject with such "species."

cremorinus, Borneo, Cesati. No specimen found by me, and the description (with "fulvescent" context) suggests nothing to me.

crocitinctus, Cuba, Berkeley. The types at Kew are all that are known, and are not surely Fomes. More probably Polyporus. Surface is dark, glabrous, wrinkled. Context scanty and pores bright yellow or rhei color. Hyphae deep yellow, spores small, 2½-3, globose, pale colored. Setae, none. It is not very ligneous and has no strata of pores. If a Fomes, it is close to Fomes pectinatus in Section 71. It is about the same size and shape as pectinatus.

crustosus, Jamaica, Murrill, = Fomes inflexibilis, teste author, but I believe not.

cryptarum, Europe, Bulliard. Buillard gave an excellent figure of a very poor specimen which had wasted a lot of energy trying to take a normal form under abnormal conditions. From its coloration, Bulliard's plant was probably Fomes annosus, but Fomes cryptarum is quite a convenient name for anything that, growing in abnormal conditions, takes this abortive form, and has been applied to several abortions by Fries, Berkeley, Rabenhorst, and others.

Curreyi, Perak, Cooke, = Trametes strigata.

cytisinus, Europe, Berkeley. This is the same plant as is called Fomes fraxineus in current usage. Fomes cytisinus is the correct name for it. No type is preserved, but from Berkeley's writings, there can be no question. The specimen in Cooke's herbarium (vide Berkeley) is not the plant.

deformis, Europe, Schaeffer. Based on an old figure (Schaeffer 264), and nothing in Europe is known to correspond. The only plant that I can suggest that is at all like the figure is Polyporus corrugis (cfr. Stip. Pol., p. 122).

Demidoffi, Russia, Léveillé. Same plant as Fomes juniperinus. Instead of making "laws" to induce men to use such uncouth names as Demidoffi when the plant has a good and appropriate name, there ought to be some adequate punishment for those who inflict such names upon defenseless plants.

diffusus, Hawaii, Fries, = Fomes lignosus, a thin annual form. Type at Upsala.

Earlei, Southwest United States, Murrill, = Fomes juniperinus, absolutely the same in every particular.

elatus, West Indies, Léveillé. No type exists.

Ellisianus, Western United States, Anderson (as alleged, but Ellis in fact without doubt, as Anderson never worked on the subject except as an artist). Generally held to be valid, a species growing on the Shepherdia in the West, but for me is the same plant as Fomes fraxinophilus on the ash in our Eastern States.

Elmeri, Philippine, Murrill, = Fomes pachyphloeus.

endapalus, Australia, Berkeley. This has been published as the same as Fomes caliginosus. It is known from one collection only, which may be young caliginosus, but appears different to me, softer, subresupinate, with different habit of growth. Fomes caliginosus grows in abundance in the Philippines and other Eastern islands and countries, but there are no typical species from Australia at Kew. Endapalus seems to be pidgin Latin or typographical error for endopalus, as the specimen was labeled by Berkeley.

endophaeus, India, Berkeley. No type exists, but from description most probably it was Fomes melanoporus.

Engelii, Europe, Harz = Fomes rufo-flavus. Specimen at Berlin.

enteroleucus, Chili, Fries. No type exists. In a general way the description suggests a Ganodermus, but the "white" context forbids.

epimiltinus, Ceylon, Berkeley. Known from type only at Kew. A resupinate piece, a Poria.

Evonymi, Europe, Kalchbrenner, = Fomes ribis. However, it is usually of a brighter color than the form on Ribis.

excavatus, British America, Berkeley, as a variety of Fomes fomentarius. It is the type form on birch. See our figure (584), made from this "type."

expansus, Europe, Desmazières. Two quite different species are found in Desm. exsiccatae under this name. One of them seems to me a resupinate form of Fomes fomentarius, that is, the same pores, but I do not know that Fomes fomentarius is ever resupinate. Fries so lists it. It was an abnormal growth in a cellar or mine. In Desmazières' herbarium at Paris most of the specimens under this name are a Poria, resembling Poria ferruginosa as to color, but having no setae.

fasciatus, Jamaica, Swartz. I have seen no type. At the British museum is a very old specimen, collected in Jamaica by "Mr. Poore," which I had supposed was the type of Swartz, but on noting it again carefully, I see there is nothing to connect it with Swartz. In the sense of this specimen the plant is the same as Fomes marmoratus, and I have heretofore so used the name. I am told by Mr. Romell that there exists in Sweden a type from Swartz which is not Fomes marmoratus, hence I must adopt Berkeley's name as fasciatus originally was not this plant.

flaviporus, Europe, Quélet. This is the mss. name under which Quélet sent Fomes laccatus to Fries. It is still so preserved at Upsala. Quélet evidently published it as Fomes resinosus.

focalis, Africa, Kalchbrenner. No type found in any museum.

fuliginosus, Europe, Scopoli. The old description of Scopoli is a guess at best. By Quélet and others used as a juggle for Polyporus benzoinus, which appears to be a good guess, but is illegal now, and in any event never was a Fomes.

Fullageri, Australia, Berkeley. No type exists.

fulvus, Europe, Schaeffer. The old figure appears to me to be a crude cut of Fomes roseus. His remarks do not apply at all. It is also alleged to be Fomes pinicola. No one knows what it is.

furcatus, Java, Junghuhn. No type found by me at Leiden (cfr. Letter 37). Junghuhn cites a figure, but never published it.

fusco-purpureus, Europe, Boudier, = Fomes torulosus.

gelsicolor, Europe, Berlese. No specimen known to me, but from figures, description, and spores, it is based on a half-ungulate specimen of Fomes applanatus.

gelsorum, Europe, Fries. Known to this day only from the crude cut of Battarrea of over 150 years ago, and based on an assertion in the start.

Gillotii, Europe, Roumeguere (as Polyporus), = Fomes annosus, vide cotypes at Berlin.

glabrescens, Mauritius, Berkeley. This I would refer to Fomes geotropus. It differs slightly in having a smoother surface, but is too close to maintain as distinct.

glaucotus, Japan, Cooke, =adamantinus. The type at Kew is the only Japanese collection known.

Gourliei, Australia, Berkeley. Only known from the "type locality." A little remnant that should never have been named. Surely not a Fomes in any event. Endorsed now as a form of Polystictus occidentalis.

grenadensis, West Indies, Murrill. This is based on one collection from Grenada, and appears to be exceptional in having the narrow pore layers separated by very narrow but distinct context layers. Context cinnamon brown. Pores minute, the narrow unusual layers strongly distinct on account of the interposed context. The

pores are completely filled with white hyphae, but I doubt if that is a normal feature of the plant. Setae, none. Spores globose, colored, 5 mic. While the interposed layers of context are unusual among Fomes, species based on this feature in Europe (Fomes vegetus) are known to be abnormal conditions, and that may be the case in this instance. On the other hand, Fomes connatus is always so characterized.

griphaeformis, Australia, Berkeley. No type exists.

Haematoxyli, Jamaica, Murrill. Based on one collection which, except as to shape (more applanate), is quite close to Fomes igniarius and probably a form. The context is dark brown. The "honey-yellow-context" of the description was a careless observation of some yellow, mycelial growth that had overrun the surface of some of the old tissue.

halconensis, Philippines, Bresadola (as variety of spadiceus). Unknown to me. It seems quite large to be referred as a variety of spadiceus.

Hasskarlii, Java, Léveillé. The type cited at Leiden is the same as senex of this pamphlet. Cotype at Kew is Fomes pectinatus. Owing to the confusion, we prefer to use Montagne's previous name, Fomes senex, although that was also badly confused by Montagne. We have heretofore used the name Hasskarlii (cfr. Letter 38).

helveolus, Europe, Rostkovius. The figure seems to be Fomes pinicola, but the description does not at all accord. Fries so referred a plant collected by Lindblad, which Romell thinks must have been Fomes pinicola. Rostkovius described helveolus as being "fleshy," but no similar fleshy plant is now known in Europe.

hippopus, Incog, Bresadola, = Fomes hornodermus. This is based on an old specimen in Willdenow's herbarium, labeled "Boletus Hippopus," but not published until 1890. Spores teste author 5 x 8-9. In Saccardo (9. 174) it is in error ascribed to Europe. It corresponds to the common plant in Africa, which was probably its source. The African form has a smoother, more even surface than the American, and might be maintained as a form.

Höhnelii, Java, Bresadola. Unknown to me. Compared to Fomes zelandicus, with setae and colored spores, 5 x 6.

holomelanus, Brazil, Cooke, = Fomes atro-umbrinus. Berkeley labeled two lots, one atro-umbrinus (which he published), the other holomelanus, which Cooke dug up and published. They are exactly the same thing, same collector, and probably same collection. v. Höhnel has an interesting notation on the type of holomelanus that it is a Ganodermus (sic).

hyperboreus, Canada, Berkeley. No type exists. Guessed by Murrill to have been possibly Fomes igniarius, which appears to have been a bad guess if its context was "pale cervine," as described.

hypopolius, Australia, Kalchbrenner (as Polyporus). No specimen in museum, but description indicates Fomes annosus.

ignarioides, Mexico, Patouillard, = for me young Fomes rimosus, same context color, spores and absence of setae. The surface is not rimose, but the specimen is young. If this is not Fomes rimosus it is surely Fomes endotheius, which is too close to Fomes rimosus. The context color (whence the name) is not that of Fomes igniarius, but Fomes robustus, the latter being misknown as Fomes igniarius locally in France.

inaequalis, Finland, Karsten (as Trametes). Specimen at Upsala appears to me to be young nodules of Fomes igniarius (malvenu).

incanus, Europe, Quélet. Quélet claims that Fomes ulmarius, fraxineus, and cytisinus were all the same species for which he invented a new name, Fomes incanus. If it were true, which it is not, there would be no occasion for a new name.

incrassatus, Australia, Berkeley, = Fomes leucophaeus.

introstuppeus, Perak, Cooke, = Fomes fomentarius.

Inzengae, Italy, De Notaris. This is the common Fomes fomentarius. Several exsiccatae specimens are found in the museums.

irregularis, United States, Underwood (as Polyporus), = Teste Murrill, subresupinate Fomes annosus. I never took the trouble to look it up. If Underwood did not know the common Fomes annosus, he was particularly competent to announce "new species."

Kamphöveneri, Tahiti, Fries, = Fomes lignosus. Type at Upsala. At one time this was the name used by Bresadola, though he has since accepted my cor-

rection and now calls it Fomes lignosus. Fries sent a specimen to Berkeley as Kamphöveneri, which is not the same as the type in his own collection, but is Fomes semitostus (or close).

Korthalsii, Java, Léveillé. See page 277.

laeticolor, Philippines, Berkeley, = Fomes Kermes.

laminatus, Central America, Ellis. This is the name written on the label which was afterwards described as Fomes rubritinctus, with no reference to the original name. Smith distributed it under the name laminatus.

Langloisii, United States, Murrill. The cotype specimens I have are old with an indurated surface, and do not show the brown tomentum, but are otherwise old Fomes ribis in every character. The spores are small, 3 mic., colored (not hyaline as described). Langlois found this on Crataegus years ago and sent it to several mycologists. One referred it to Fomes pectinatus, another to Fomes senex, another to Fomes conchatus. Mr. Murrill probably thought it could not be all three of these at the same time, so he called it a "new species."

Leaianus, United States, Berkeley. Mss. afterwards named Fomes ohiensis (as Trametes). Berkeley sent specimens to Montagne under this mss. name.

leprosus, Brazil, Fries. No type exists.

Le Rati, New Caledonia, Patouillard, = Fomes semitostus.

levissimus, Ceylon, Fries. My notes concerning the type are "very poor, not recognizable, not a Fomes, however." I have since gotten Fomes floccosus from Ceylon, and from description of levissimus, I believe it is probably same.

ligneus, West Indies, Berkeley. In my opinion, same as Fomes hornodermus. The old type is discolored, but hornodermus is known from many recent collections from the West Indies, and is the only Fomes that seems to occur there, to which ligneus may be referred. Still there is an element of doubt, and for that reason we use the more recent and more certain name.

Lilliputiana, Brazil, Spegazzini, (as Trametes)= Fomes pectinatus, teste Bresadola Unknown to me. No specimen found by me in any museum.

Lipsiensis, Europe, Batsch. Fig. 130 is a crude cartoon cited by Persoon and Fries as doubtfully representing Fomes applanatus, and dug up and used as a cheap juggle for Fomes applanatus by Murrill and later by Atkinson. The latter writer, after indulging in such work himself, was inconsistent enough to go to Brussels and vote six or eight times for a law outlawing others who engage in similar work.

lividus, Australia, Kalchbrenner. A species of Poria, types at Kew and Berlin.

lobatus, United States, Schweinitz. This was an abortion and a distortion, and the "species" was based on this fact. Had it been normal, the author would probably have referred it to "Fomes fomentarius" (sic). It is claimed (which is a guess at best) that it is the same that Morgan called Polyporus reniformis, and the name has been used as a juggle in this sense.

Lonicerae, Europe, Weinmann, = Fomes Ribis.

loricatus, Europe, Persoon, = Fomes salicinus (cfr. Myc. Notes, page 469).

luzonensis, Philippines, Murrill, = Trametes plebia.

malvenus, Samoa, Lloyd, see tropicalis.

marginatus, Europe, Persoon. The name was applied to the frondose form of Fomes pinicola when that was supposed to be different from the form on pine wood. As used by modern authors in exsiccatae, it is usually a synonym for Fomes pinicola. Fuckel, however, distributed Fomes annosus under this name.

medullaris, India, Berkeley. No type exists. Probably it was a Ganodermus, as it was described as laccate, but that is as much as one can ever guess concerning its identity.

megaloma, United States, Léveillé. No type exists, and it is unknown. It was used by Murrill as a juggle for Fomes leucophaeus, apparently a vague guess, because Léveillé states "that it was similar but different from Fomes applanatus." Léveillé, however, left American specimens which are typical Fomes leucophaeus and labeled them Fomes applanatus, so I do not see how Fomes leucophaeus can logically be held to be the same as Fomes megaloma, when all that is known about the latter is Léveillé's vague statement that it differs from applanatus, and there is positive evidence that Léveillé thought that leucophaeus was the same as applanatus. There is also some additional evidence at Paris on the subject. Léveillé left a specimen which Mr. Murrill claims should be called "Fomes megaloma, Lev." which Léveillé labeled Fomes fomentarius (sic). Therefore, according to Mr. Murrill, Léveillé

discovered a "new species" which he named Fomes megaloma, but did not leave any evidence excepting Mr. Murrill's imagination as to its identity. The evidence Léveillé left was in the specimens labeled Fomes applanatus and Fomes fomentarius (sic). The whole history is a fine example of the kind of work done by Léveillé and the evidence on which Mr. Murrill published his opinions of such work.

melanoporoides, East Indies, Cesati. No specimens found by me in any museum, and it is said that no type exists. Undoubtedly, however, it was Fomes melanoporus. Specimens so determined at Kew are Polyporus durus.

Meliae, United States, Underwood. Types are old and discolored, but I believe old specimens of Fomes connatus. Recently determined specimens as Meliae I am sure are connatus.

Memorandus, South America, Spegazzini. Unknown, no specimen in the museums. Description reads much like albo-ater.

Merrillii, Philippines, Murrill, = Fomes endotheius.

microporus, Jamaica, Swartz, = Fomes lignosus, and is the earliest name for it. The type at British Museum is scanty and small, and for a long while I was in doubt whether it was Polyporus zonalis or Fomes lignosus. Only recently I have been able to satisfy myself.

mirus, Siberia, Kalchbrenner. The type material I have noted is only a little bundle of pores, but is the common Fomes fomentarius. Is it any wonder that Kalchbrenner made so many startling discoveries in "science," if he thought the common Fomes fomentarius was "marvellous?"

mortuosus, Pacific Islands, Fries, = Fomes caliginosus teste Bresadola.

Neesii, Europe, Fries. Unknown either from specimen or figure. Fries collected it on beech, and why he named it Neesii I do not know. The original description, "hardly a line thick," would indicate a Polystictus rather than a Fomes.

nicaraguensis, Central America. Berkeley. No type exists.

nigricans, Java, Junghuhn, = Fomes australis testes Fries.

Novae-Angliae, United States, Berkeley. The type, a single specimen, is a thin, brown Polyporus, closely related to Polyporus rutilans. I do not recognize it as any species I know. The surface is brown, pubescent, context brown, and pores brown. Setae, none. Hyphae pale colored. Spores no doubt white. It is not a Fomes, nor has it the most remote suggestion even of being Fomes igniarius, which Murrill vaguely guesses it to be.

noveboracensis, United States, Saccardo. Given in Saccardo, Vol. 6, p. 192, as a variety of scutellatus. Author not stated, as Saccardo seems to have followed my plan of omitting advertisements. No such "variety" of scutellatus is known in America.

nubilus, Africa, Fries. No type exists, but teste Fries it was the same as ferreus of this pamphlet. In the sense of Patouillard, it is Trametes cingulata.

ochrocroceus, Java, Hennings, = Fomes kermes.

odora, Europe, Fries. See page 274.

officinalis, Europe, Fries. This is Fries' name for Fomes Laricis, and is "legal" now. The plant was known to the oldest authors and medical works as "fungus laricis," etc. Rubel, in Jacquin Misc., Austria, 1778, had an article on the drug, which he called Agaricum officinalis, and the plant was crudely figured (t. 20, 21) and named (page 172) as Boletus Laricis. Gmelin changed it to Boletus purgans, which was followed by Persoon. Fries, of course, could not follow Persoon, so he dug up an old name of Villars, Boletus officinalis, based on the Latin name for the drug instead of the name for the species.

oleicola, Africa, Hennings. Type not found by me at Berlin.

orbiformis, Africa, Fries. The type at Upsala is a subresupinate Ganodermus. It is said to be the same plant that I call mastoporus. I hold the type to be inadequate to decide.

oxyporus, Europe, Sauter. No specimen known to me. It is said to be Fomes connatus.

pachydermus, Philippines, Bresadola, = adamantinus, and so corrected by the author.

Palliser, British America, (Berkeley Mss.) Cooke. This was also named by Berkeley in mss. Trametes arctica, and we adopt the mss. name instead of the published name, as neither the publication, description, or specimen that Cooke published as "Polyporus Palliser Berk." had any reference or resemblance to plant

so named by Berkeley (in mss.), nor does it grow in the same hemisphere (cfr. Note 8, Letter 32). It is a variety, but a marked variety of Trametes carnea, as I published years ago. The name Trametes Palliser has since been taken for Trametes carnea, but I believe without merit, as it refers only to the variety, and should not be substituted for the "type" form, and also it has never been "described", for the "description" published referred to an entirely different plant.

Pandani, China, Fries. Loureiro one hundred and twenty years ago vaguely ascribed to "Boletus igniarius" a collection from China which he described as thin and red. As it was evidently misnamed, Fries named it Polyporus Pandani. Cooke decided it was a Fomes (sic). If it had been called Polystictus sanguineus, it would have been probably nearer the truth.

Pappianus, Africa, Bresadola, = Fomes badius. I learned the plant under this name, and would be disposed to continue it, but feel it is unfortunate that a man should be so named, and hesitate in inflicting it on a plant.

paradoxus, Europe, Humboldt, = Fomes rufo-flavus, it is stated. The crude figure Humboldt gives represents nothing.

peguanus, India, Montagne. There is no type at Paris, but I found one at Berlin. How it got there I am unable to say. It is the same as Fomes caliginosus.

perpusillus, Incog. Persoon. The originals are in the herbarium of Persoon so labeled. There is no locality on the label. It was published by Léveillé as "Hab. America borealis ad truncos," which I think is wrong, as I do not recognize it as any American species. It is said to be Fomes scutellatus, but of this I am not so sure.

Pfeifferi, Europe, Bresadola, = Fomes laccatus.

phaeus, India, Berkeley, = Fomes melanoporus.

philippinensis, Philippines, Murrill. Described with isabelline context, smooth, pale crust. Spores hyaline, 4 x 5. No specimen seems to have been distributed to any museum in Europe.

piceus, Borneo, Cesati. No type known by me, but probably the same as Fomes pseudoaustralis or Fomes subtornatus.

ponderosus, Australia, Kalchbrenner. No specimen found by me in any museum, but from description appears to be Polyporus durus, and is probably not a Fomes.

ponderosus, United States, Schrenk, = Fomes pinicola teste Murrill.

populinus, Europe, Schumacher. A vague, old reference, used first by Karsten and afterwards by others as a juggle for Fomes connatus. The figure Flo. Dan. 1791, which is a specimen "legit Schumacher," appears to be a Polyporus (not a Fomes), nor does it have the coloration of Fomes connatus.

praerimosus, United States, Murrill, = Fomes Everhartii, as the author admits.

propinquus, South America, Spegazzini, unknown.

pseudoconchatus, Africa, Hennings. The type is in the show department of the museum at Berlin. It is an unusually large specimen (3-4 inches in diameter) of Polyporus fruticum.

punctatus, Java, Junghuhn. No type found.

purgans, Europe, Gmelin, = name change of Laricis. It was adopted by Persoon.

pyrrhocreas, Australia, Cooke, = Fomes Kermes.

resinosus, Europe, Schrader. A vague, old description, probably originally same as Fomes laccatus of this pamphlet. In sense of Quélét, it is Fomes laccatus. In the sense of Fries' Hym. Europe, it is Polyporus fuscus, very common in the United States, and close to Polyporus benzoinus. It was evidently misnamed by Fries, for it is not "resinous," and the original calls for a strongly resinous plant. It is legal now, however, for it is against the "law" to correct Fries' mistakes.

Robiniae, United States, Murrill, = Fomes rimosus.

roseo-albus, Java, Junghuhn. A subresupinate, Polyporus or perhaps Fomes. The type at Leiden is unsatisfactory, and the name has no application to it, now at least, for there is nothing about it either "rosy" or "white." Bresadola takes it in the sense of Fomes caliginosus of this pamphlet, in which case the name has even less application.

rubiginosus, Europe, Schrader. An old, vague description, variously interpreted. Given by Fries as a synonym for Polyporus resinosus in his sense (fuscus for me), which is also only an interpretation of an old, vague description, and was probably as wrong as the synonym. At one time Bresadola used rubiginosus as a

substitute for Fomes applanatus, but has since abandoned it. At Kew there is a "type" specimen of rubiginosus from Fries which is Polyporus cuticularis.

rubriporus, Europe, Quélet, = Fomes torulosus.

rudis, Africa, Patouillard, = Fomes Yucatensis, and both could be considered as being Fomes rimosus with setae.

rudis, West Indies, Léveillé, = Polyporus supinus (?). The type is quite old, and the characteristic context color of Polyporus supinus is not sure. Also it is thinner. Murrill refers it as a pale form of Trametes Persoonii, which was a very bad guess, as it has no relation whatever to it. Patouillard published it as a Ganodermus, also an evident error.

rufo-pallidus, Europe, Trog. = Fomes roseus, young specimen. Fries' Icones under this name is a good drawing of young Fomes roseus. There is a type from Trog at Paris.

Sancti Georgii, South America, Patouillard. This has the same surface, context, pores, pore mouths, and spores as Fomes Niaouli, and is too close to keep distinct. The context is of a shade darker color, which is all the difference I can note. I believe it is a "prior" name.

scansilis, Pacific Island, Berkeley. Based on a diseased condition of Fomes australis when the context has turned white. These conditions are not rare even in European and American forms of Fomes applanatus. I do not know what causes it, but judge it is a disease of some kind.

sclerodermeus, West Indies, Léveillé, = Fomes marmoratus, and is perhaps an earlier name for it. I have not looked up the dates.

sclerodes, Cuba, Berkeley. No type exists.

Secretani, Europe, Orth (as Trametes). Specimen so labeled "Orth in herb." at Paris is Fomes connatus.

sordidus, "America," Léveillé. No type found by me. The only specimen at Paris is from Guadaloupe, and is probably Valenzuelianus. It is endorsed by Léveillé "differs by its pale context," hence it is probably not the type.

squalidus, Brazil, Fries. No type exists.

Stevenii, Russia, Léveillé. Specimen is not preserved in any museum I have visited. I have been told that it is in Italy. From the figure and description, I judge it is Fomes leucophaeus.

subextensus, Philippines, Murrill, = Fomes senex.

subferreus, West Indies, Murrill, = Fomes dochmius as to the type, also specimen recently distributed (Wien 1908).

subfomentarius, Brazil, Romell, = Fomes marmoratus, as the author acknowledges on a label at Kew.

subfulvus, West Indies, Cooke. Change of Polyporus rudis (q. v.) of Léveillé, which is so indefinite that one name is enough for it. Cooke never saw it, and "subfulvus" would have no application to it. The type is old and very doubtful. Probably it is Polyporus supinus.

sublinteus, Mexico, Murrill. Not a Fomes, but a Polyporus with colored spores. Based on little pieces in Ellis' herbarium. One piece seems to have had a stem.

subpectinatus, West Indies, Murrill, = Fomes pectinatus, regular specimens. Spores 3½ rather than 2 mic., as described. Rick distributed this plant as Fomes capucinus.

sulcatus, South America, Cooke, = Fomes hornodermus. The pores are slightly larger and the context not so hard, but I think it is the same species.

sulcatus, United States, Murrill. Same species as called by same author Fomes zonatus. The name sulcatus is a duplicate (in Fomes), having been used by Cooke.

Swietiniae, West Indies, Murrill. Represented at New York by two specimens of quite different context color, and not the same species in my opinion.

tasmanicus, Tasmania, Berkeley. Type very poor. In my opinion, Fomes semitostus.

tenax, South America, Léveillé. No type exists.

tenuis, Europe, Karsten. Usually a Poria, though I once collected a Fomes form. Very common in Sweden, and surely known to Fries, who called it, I think, Poria ferruginosa. For me, it is Poria ferrea.

testaceus, Brazil, Léveillé. Type at Paris a little deformed specimen of Fomes australis. Used in this pamphlet in the sense of Patouillard, not Léveillé.

thelephoroides, Europe, Karsten. Unknown. Said to have the "form and color of Thelephora laciniata." That must be a curious "Fomes." It is a pity that Karsten did not distribute such a remarkable find. See his figure, which appears to be something unusual, but a doubtful "Fomes."

Thomsoni, India, Berkeley. Known only from the type, an old and very poor specimen with large pores. Not a Fomes, but a Trametes, and as a guess, Trametes Persoonii.

tornatus, Rawak, Persoon. The original specimen at Paris was endorsed by Léveillé as being Fomes australis. It was a case where Fries had ignored "priority" because it was Persoon's name, not his own, at issue. Our modern lawmakers have legalized this method of robbing poor old Persoon, for he had no standing at Brussels. Murrill is the only knight errant of modern times who battles for the rights of poor old Persoon. He used it as a juggle for Fomes australis.

tostus, Philippines, Berkeley, = Trametes Persoonii.

tropicalis, South America, Cooke. This rests on one quite abundant, but, I think, abnormal, collection. It is of the same nature as Fomes cryptarum. The context hard, isabelline, pore mouths pale, probably white when fresh. The abortive pileus surface black, smooth. I made a very similar collection in Samoa, but evidently a different species, which I have labeled Fomes malvenus, merely to have a name for it in my collection, but I do not place much stress on these evidently abnormal things.

Troyanus, Jamaica, Murrill. Types are two little undeveloped specimens, in my opinion inadequate material on which to base a species.

tuniseus, Tunis, Patouillard. Based on one collection on the locust tree, from Tunis, and for me = Fomes rimosus.

Underwoodii, West Indies, Murrill, = Fomes badius.

ungulatus, Europe, Schaeffer. This is one of several names under which Schaeffer illustrated Fomes pinicola. As found in Saccardo, it is a definite idea of the ungulate form with narrow annual layers. As usually used by modern authors in exsiccatae, it is only a juggle for Fomes pinicola.

variegatus, Europe, Sowerby (not Secretan, as innocently cited). From Sowerby's remarks, rather than from his figure, which is too yellow, I judge this is the sessile, annual Polyporus recently named Ganodermus resinaceus in Europe.

vegetus, Europe, Fries. This is a condition of Fomes applanatus with layers of context interposed between the pores. It is not rare in Europe.

verruculosus, South America, Meyer. No specimen preserved probably, but from description, it was surely Fomes pectinatus, and a "prior" name.

versatilis, Europe, Quélet, = Fomes Ribis, teste Bresadola. Quélet in his last work calls it Fomes pectinatus.

versicolor, Australia, Hennings. Type not found by me at Berlin. Said to have colored spores. Setae not mentioned.

Williamsianus, Philippines, Murrill. Unknown to me. Not distributed to any museum in Europe. From description, it is a Ganodermus with asperate spores in Section 78.

Williamsii, Philippines, Murrill, = Fomes lamaensis, and named on the same page. The next year Murrill withdrew the species and referred it to Fomes endotheius, to which it has little resemblance, and no analogy.

Xylocreon, South America, Spegazzini, unknown.

INDEX AND ADVERTISEMENTS.

It is customary to append to the binomial representing a plant name, more or less personal names. The name of the man who is supposed to have named the plant, or some of his friends, or the collector, or the name of some individual who arranged it in the genus, and usually guessed at it, and the jugglers are very fond of writing their own names after each name they concoct. We do not believe in all this useless bid for notoriety. We think a binomial, a binomial alone, should represent a plant name.

For the benefit, however, of those who think that a plant should have an appendix to its name, we itemize in our index the name that should be added to it, being the name of the author who proposed the specific name, or in a few cases (where we are concerned) of the collector.

	PAGE.
Abietis, Trametes, Karsten	277
abruptus, Fomes, Berkeley	222
adamantinus, Fomes, Berkeley	235
albo-ater, Fomes, Cooke	237
angularis, Fomes, Umemura	239
annosus, Fomes, Fries	217
annularis, Fomes, Saxton	268
applanatus, Fomes, Persoon	263
artica, Trametes, Berkeley	225
atro-albus, Fomes, Hennings	219
atro-umbrinus, Fomes, Berkeley	240
australis, Fomes, Fries	265
badius, Fomes, Berkeley	249
Baccharidis, Fomes, Patouillard	239
Bakeri, Fomes, Murrill	243
borealis, Fomes, Lloyd	247
calcitratus, Fomes, Berkeley	262
caliginosus, Fomes, Berkeley	237
Calkinsii, Fomes, Murrill	234
carnea, Trametes, "Nees"	224
Caryophylli, Fomes, Raciborski	254
cinchonensis, Fomes, Murrill	242
concavus, Fomes, Cooke	222
conchatus, Fomes, Persoon	244
connatus, Fomes, Fries	216
cuneatus, Fomes, Colenso	217
cupreo-rosea, Trametes, Berkeley	227
densus, Fomes, Oleson	245
dependens, Fomes, Murrill	254
dochmius, Fomes, Berkeley	221
endotheius, Fomes, Berkeley	277
Eucalypti, Trametes, Kalchbrenner,	226
Everhartii, Fomes, Ellis	258
exotephrus, Fomes, Berkeley	235
extensus, Fomes, Léveillé	248
fasciatus bis., Fomes, Léveillé	265
fastuosus, Fomes, Léveillé	250
Feei, Trametes, Freis	226
ferreus, Fomes, Berkeley	223
floccosus, Fomes, Bresadola	220
fomentarius, Fomes, Linnaeus	235
fraxineus, Fomes, Bulliard	230
fraxinophilus, Fomes, Peck	223
fusco-pallens, Fomes, Bresadola	272
fulvo-umbrinus, Poria, Bresadola	231
galegensis, Fomes, Montagne	266
geotropus, Fomes, Cooke	228
glaucoporus, Fomes, Bathie	251
Graffii, Fomes, Lloyd	272
Hawaiensis, Fomes, Forbes	260
hemitephrus, Fomes, Berkeley	220
hornodermus, Fomes, Montagne	214
hydrophilus, Fomes, Murrill	256
igniarius, Fomes, Linnaeus	245
inflexibilis, Fomes, Berkeley	235
Jasmini, Fomes, Quélet	254
Javanicus, Fomes, Bresadola	251
juniperinus, Fomes, Schrenk	232
Kermes, Fomes, Berkeley	231
Koningsbergii, Fomes, Lloyd	270
laccatus, Fomes, Kalchbrenner	267
laetus, Fomes (?), Cooke	231
lamaensis, Fomes, Murrill	245
Laricis, Fomes, Rubel	213
lateritius, Fomes, Cooke	232
latissimus, Fomes, Bresadola	219

	PAGE.
leucophaeus, Fomes, Montagne	264
lignosus, Fomes, Klotzsch	230
lilacino-gilva, Trametes, Berkeley	226
linteus, Fomes, Berkeley	261
marmoratus, Fomes, Berkeley	237
martius, Fomes, Berkeley	215
McGregori, Fomes, Bresadola	254
melanodermus, Fomes, Patouillard	261
melanoporus, Fomes, Montagne	240
minutulus, Fomes, Hennings	251
mirabilis, Fomes, Ussher	232
Niaouli, Fomes, Patouillard	250
nigrescens, Fomes, Klotzsch	237
nigricans, Fomes, Fries	246
nigro-laccatus, Fomes, Cooke	265
nontostus, Fomes, Bathie	221
obesus, Fomes, Patouillard	215
odoratus, Fomes, Wulfen	273
Ohiensis, Fomes, Berkeley	218
oroflavus, Fomes, Wilson	265
ostricoloris, Fomes, Luja	257
pachyphloeus, Fomes, Patouillard	260
pectinatus, Fomes, Klotzsch	253
perlevis, Fomes, Bathie	231
Petchii, Fomes, Lloyd	268
piceina, Trametes, Peck	277
pini, Fomes, Brotero	275
pinicola, Fomes, Swartz	219
plebeia, Trametes, Berkeley	227
polyzonus, Fomes, Ussher	269
pomaceus, Fomes, Persoon	241
pseudoaustralis, Fomes, Curran	269
pseudosenex, Fomes, Murrill	255
psila, Fomes, Rick	233
pullus, Fomes, Montagne	253
pusillus, Fomes, Yasuda	240
putearius, Fomes, Weir	274
reniformis, Fomes (?), Morgan	266
rhabarbarinus, Fomes, Berkeley	257
rhaponticus, Fomes, Umemura	258
rheicolor, Fomes, Castillon	245
rhytiphloeus, Fomes, Montagne	251
ribis, Fomes, Schumacher	252
rimosus, Fomes, Berkeley	248
Robinsoniae, Fomes, Murrill	234
roburneus, Fomes, Fries	246
robustus, Fomes, Karsten	242
roseiporus, Fomes, Patouillard	215
roseocinereus, Fomes, Murrill	238
roseola, Trametes, Patouillard	227
roseus, Fomes, A. & S	223
rubritinctus, Fomes, Murrill	221
rufo-flavus, Fomes, Berkeley	220
Sagraeana, Trametes, Montagne	226
salicinus, Fomes, Bulliard	244
Sanfordii, Fomes, Petch	258
sarcitus, Fomes, Fries	257
scaber, Fomes, Berkeley	249
scalaris, Fomes, Berkeley	238
scleromyces, Fomes, Berkeley	221
sculpturatus, Fomes, Bathie	233
scutellatus, Fomes, Schweinitz	218
semitostus, Fomes, Berkeley	220
senex, Fomes, Montagne	259
setulosus, Fomes, Petch	243
squarrosus, Fomes, Wilson	247
subflexibilis, Fomes, Berkeley	237
subresinosus, Fomes, Murrill	215
subtornatus, Fomes, Murrill	269
subungulatus, Fomes, Murrill	219
surinamensis, Fomes, Bresadola	238
tenuissimus, Fomes, Murrill	239
Tepperii, Fomes, Lloyd	256
testaceus, Fomes, Patouillard	270
texanus, Fomes, Murrill	242
torulosus, Fomes, Persoon	243
tricolor, Fomes, Murrill	232
ulmarius, Fomes, Sowerby	228
velutinosus, Fomes, Hutchings	260
Yasudai, Fomes, Lloyd	272
Yucatensis, Fomes, Murrill	257
zelandicus, Fomes, Cooke	247
zonatus, Fomes, Murrill	271

SYNOPSIS

OF THE

CORDYCEPS

OF

AUSTRALASIA

By

C. G. LLOYD.

CINCINNATI, OHIO, - MARCH, 1915.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
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PROF. P. MAGNUS.

We dedicate this pamphlet to the memory of our late friend, Dr. Magnus. We never visited Berlin without the pleasure of calling on him. He was an old bachelor, and like all old bachelors, was no doubt a little cross, but we have always found him most genial, and think he was not half as cross as would appear from the photograph.

The Cordyceps of Australasia.

Cordyceps are the most curious fungi that grow. They develop from insects either in the larval, pupal or perfect stage. Two species of Europe grow on hypogeal fungi.

In olden times these curious growths were thought to be a transmutation of an insect into a plant, but of course it has long been known that Cordyceps are parasitic plants that grow on the insect and subsist upon its animal tissue.

Like most mycology in Australia, Cordyceps are less known than from most other parts of the world. This is due to the fact that there are so few collectors. What little is known is mostly from specimens that were sent to Berkeley years ago and are preserved at Kew. We have worked over this material and this pamphlet is the result, but it is only a fragment.

Up to the present time about 160 species of Cordyceps have been named. They never have been critically monographed or studied, and probably about one-half of them are good. Most of these are small species from a few millimeters tall to five or six centimeters, and it is a curious fact that in Australia there are very large species with clubs six to eight inches, and all the large species are known from Australia.

In Brazil, where the subject has been well worked, there are about twenty species of Cordyceps listed, and in Australia only six, but the number could be increased several fold if they were observed and collected.

Cordyceps are usually club-shaped bodies. All the known Australian species are, and consist of the fertile club, borne on a stalk which is attached to the host. The large Australian species are all attached to buried larval, only the club and stem appearing above the ground, and they appear like simple Clavarias. In collecting them for the museum, the buried host should always be dug up and dried attached to the fungus.

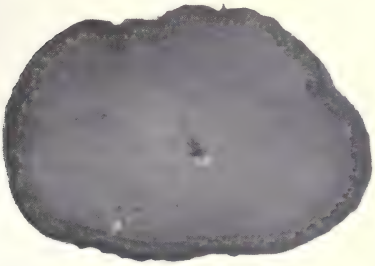


Fig. 611.
Section of club enlarged.

Fig. 612.
An ascus highly magnified.

The fertile portion when examined under the microscope is found to bear little sack-like bodies called perithecia. In most Cordyceps the perithecia are imbedded in the tissue (stroma), only the mouths reaching the surface. Some species, however, have the perithecia exserted, and they are borne on the surface of the stroma (free) in some species. Our figure 625 is an ideal drawing, though the head of a Cordyceps showing the perithecia as little sacks. Fig. 611, a section enlarged of a Cordyceps club, shows the perithecia as dark spots around the margin.

Each perithecium contains numerous long thread-like hyaline bodies. Under a low power they appear as simple threads, but under a high power are resolved into linear sacks (asci) each containing eight linear septate spores. The bundle of spores completely fill each ascus, and the walls of the ascus are so hyaline and thin they are difficult to see. The spores are septate in the ascus, and in water mount break up into their component cells, which are called secondary spores. Each spore breaks up into many, 120 or 160 secondaries. Some species have the spores tardily septate, and appear in the ascus as long threads, and it has been stated (erroneously) that there are species with non-septate spores. Other species have the spores at an early period, broken up into the little segments in the ascus. Fig. 612 is an ideal drawing of the top of an ascus highly magnified, showing the linear spores divided by septae.

Fig. 613.
Isaria farinosa.

Fig. 614.
Cordyceps militaris.

Supposed to be the conidial and perfect form of the same species.

The life history of Cordyceps is not known, excepting as to the common species of Europe, Cordyceps militaris, which was first investigated by Tulasne, and afterwards by de Bary. It is probably, however, that the development of all the species is about the same. The spores become attached to the moist body of a caterpillar (or other insect) and germinate, sending out germ-tubes which penetrate the thin outer skin of the host. Here they enlarge and take the nature of fungal hyphae,

which branch and grow through the skin and into the flesh and tissue of the creature. In the blood these hyphae produce long cylindrical bodies called gonidia, that enlarge and divide into cells and develop to such an extent that they kill the insect. After the death these fungal hyphae continue to grow and absorb the tissue of the host until finally the skin of the host alone remains intact, the internal soft tissue of the host being replaced by the fungal hyphae, and in this condition is called a sclerotium. A section of a sclerotium is a uniform structure of interwoven hyaline, fungal hyphae showing no trace of the form of the internal organs of the host. It is said that traces of the intestines sometimes remain.

The sclerotia of most species of Cordyceps, perhaps all of them, produce in their life circle two different kinds of fruiting bodies which have little resemblance to each other. First, there is produced a conidial condition, when the spores are borne direct on the hyphae. This conidial development is either a loose, powdery (mildew-like) membrane over the host (Fig. 615) known as Botrytis, or it is a definite stipitate body (Fig. 613), called Isaria. Second, the sclerotium produces usually a club-shape body bearing perithecia (Fig. 614) and ascus spores, which is the true Cordyceps as previously described. The correlation of the Isaria and Cordyceps forms is known only as to a very few species. Isaria farinosa (Fig. 613), which is the only common Isaria we have in the United States, is known to be the conidial fruiting body of Cordyceps militaris (Fig. 614). In Brazil there are species which bear the Isaria and Cordyceps fruit concurrent, and in Ceylon is a species of Cordyceps where the upper part of the club bears conidial spores, and the lower part the perithecia. Usually, however, the Cordyceps form is supposed to be produced some months after the Isaria form. The Isaria form of none of the Australian species is known, excepting "Cordyceps Sinclairii" (Fig. 626), and that is only known from the Isaria fruit.

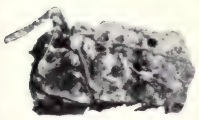


Fig. 615.

THE CORDYCEPS SPECIES OF AUSTRALASIA.

We present the usual formal description of the known Australasian species and a photograph of each made from authentic material. Specimens can be determined from the photographs much easier than from the descriptions, but it must be borne in mind that the specimens shrink in drying and the fresh specimens are thicker than the dried.

CORDYCEPS ROBERTSII (Fig. 616).—Fertile club slender, 2½ to 5 inches long, 3-4 mm., thick, acute, densely covered with the superficial perithecia, which reach the apex of the stem. Stem proceeding from near the thorax of the caterpillar, slender, 2 to 6 inches long, 2-3 mm. thick. Perithecia small, densely packed around the central axis, free, easily rubbed off from the axis.

Popular accounts were written of the fungus in the early days under the name of plant-caterpillar. It was eaten by the natives. It is the most slender of the large species, and from the accounts, is dark, almost black when fresh. The host, according to Gray, is the larva of Charagria virescens, a Lepiodoptera in the perfect state. These insects pass the first two states as larva and pupa, in the earth around the roots of tree ferns. The larva become infected with the spores of the Cordyceps and are killed before reaching the pupal state. Each sclerotium sends up but a single fruit.

Cordyceps Robertsii was named and figured by Hooker in Icones Plant, vol. 1 (1837), t. 11, and later by Berkeley (1840) in Hooker's Journal of Botany, Vol. 3, page 77, t. 1, fig. A. It has been known as Cordyceps Robertsii in all English (except one), French and general

literature. Corda included it in his Icones, Vol. 4, fig. 129 (1840) as Sphaeria Hügelii and Saccardo and Massee adopted Corda's specific name probably on the overworked principles of "priority," thinking that 1840 was an earlier date than 1837.

Cordyceps Robertsii seems frequent in New Zealand. There are five specimens at Paris, and over twenty at Kew and the British Museum, all from New Zealand. I believe it is unknown from Australia or Tasmania. The variety of Cordyceps Robertsii called var. neglecta can safely be nelgected, as it was based on a specimen that was mashed, which is all the difference as far as I could note.

CORDYCEPS GUNNII (Figs. 617 and 618).—Fertile club, solitary, rarely two from same host, 2-3 inches long, 5-10 mm. thick, obtuse, even, with the perithecia imbedded. Stem varying according to the depth of the larva in the ground, 5-7 mm. thick. Perithecia flask-shape, imbedded in the stroma, the mouths only showing as minute points on the surface. Ascus with a globose apex. Spores breaking usually into short sections in the ascus. Secondary spores very small, 2½ mic. long.

Cordyceps Gunnii was originally known from Tasmania, but was named from Australian collection of Gunn, who sent Berkeley a long letter on its habits. The host (teste Gray) is the larva of species of the genus Pielus, Lepiodopterous insects, the caterpillars of which live in burrows in the soil. Mr. Gunn wrote that the Cordyceps were found in great abundance in sandy soil. "They are from five to eighteen inches long (according to the depth of the burrow). The stem beneath the surface is white, but the club (2 to 4 inches long) is dark olive black. When fresh the club is from one-third to an inch thick, but one-half inch is the average. Usually one fungus springs from near the head of the larva, sometimes from the back, rarely two from the same larva."

The type specimen of Cordyceps Gunnii (Fig. 617) is short and thick and has no stipe, but the usual specimen at Kew is more slender (Fig. 618) and has a long stipe.

Cordyceps Gunnii is known from abundant specimens at Kew and British Museum, all from Australia and Tasmania. There are none from New Zealand. Also there is a single collection at Paris (called Cordyceps Lacroixii) from Japan, which appears to me to be the same species. I have specimens of Cordyceps Gunnii from F. M. Reader, Australia.

CORDYCEPS HAWKESII (Fig. 619) appears to me, from the account to be but a short-clubbed form of Cordyceps Gunnii. It was named from Tasmania, grew on the same host, and was distinguished by its short club and bearing two fruits near the back or other parts of the larva. Both of these features are recorded by Gunn as occurring exceptionally in his original account of Cordyceps Gunnii. I found no specimen of Cordyceps Hawkesii in either of the museums at London.

CORDYCEPS TAYLORI (Fig. 621).—Fertile club solitary from the host, but branching into several (usually three or four) branches which are again branched near the apex. Perithecia (unknown to me) stated to be superficial.

Fig. 616.

Fig. 617.

Fig. 618.

Fig. 616, Cordyceps Robertsii. Fig. 617, Cordyceps Gunnii (type). Fig. 618, same, the usual form.

The largest and most noteworthy Cordyceps known. Its method of growth is clearly shown on our photograph. The larva is supposed by Gray to be that of a species of Pielus, a large brown moth of Australia. The larva lives in burrows in the ground. When it is killed by the parasite, it remains in its tube in a vertical position. The fungus is developed in the same vertical plane in the head of larva. It branches near the base into three or four branches which grow to the surface of the ground (from two to four inches in all the specimens I have seen). At the surface of the ground each branch projects only about an inch, giving off short, compressed forks. The entire fungus when dug up resembles a stag's antlers, and it is a pity it was not named in accordance. The projecting portion, which no doubt becomes the fertile portion, forms on the surface "a circular bunch of branches of a brown, velvety appearance." The specimens I have are not in fruit, and I am unable to see any perithecia on any of the photographs I have. They are stated to be superficial, but I am not so sure.

Fig. 619.
Cordyceps Hawkesii.

Fig. 620.
Cordyceps Dovei.

Cordyceps Taylori was first found in 1837 by "Rev. Mr. Taylor, of Waimati," and sent to Hooker. It was named by Berkeley and figured in Hook. Jour. Bot. 1843. I am not satisfied that it is the same plant as our photograph. The type is preserved at Kew, and

Fig. 621.
Cordyceps Taylori.

Fig. 622.
Cordyceps Henleyae.

it has numerous 15-20 immature branches, resembling the head of a Medusa. There are several collections (as our figure) received at a later date at Kew and the British Museum and referred to this species. Not one of them had more than four primary branches, and are quite different in appearance to me from the original specimen. I have a specimen received through the Botanical Garden, Warsaw, Russia.

CORDYCEPS HENLEYAE (Fig. 622).—Solitary, stem proceeding from the head of a large larva, seven inches high, five mm. thick, bearing above about a dozen fertile branches. Perithecia superficial. Spores separating in the ascus into numerous small secondary spores 2½ mic. long.

No other similar Cordyceps is known, and this is known from a single specimen at Kew. It was collected by Miss M. Henley in Victoria, Australia, and described and figured by Massee in 1895. Our photograph (fig. 622) of the type tells the whole story. The host is evidently the same, or a similar larva to the one that bears Cordyceps Taylori.

CORDYCEPS DOVEI (Fig. 620).—This is known to me only from the figures at Kew, evidently the original drawing by Rodway. It is a most curious species, the short sessile clubs forming a cluster at the apex of the host. There is no other similar species figured from any country. It was published in the Trans. R. S. Tasmania, Aug., 1898, and has entirely escaped Saccardo.

Fig. 623.
Cordyceps gracilis.

Fig. 624.
Australian form.

Fig. 625.
Section of head enlarged.

CORDYCEPS GRACILIS (Fig. 623).—Head globose or oval, 4-6 mm. in diameter, dark yellowish brown. Stem 2-3 cm. long, 2 mm. thick, yellowish, attached to the host by a rooting base. Perithecia imbedded, the mouths slightly protruding, so that the head is minutely rugulose.

Spores linear, moniliform, breaking into short secondary spores 4 x 6-8 mic. and rounded at the ends.

The only small Cordyceps that has been recorded from Australia is the most common species of England (Fig. 623). It is found also on the continent and in Algeria and has been rarely found in the United States. Mueller sent it to Berkeley under the name Cordyceps menesteridis from the host Menesteris laticollis. Cooke correctly referred it to Cordyceps gracilis under the mistake Cordyceps entomorrhiza, as Cordyceps gracilis is misnamed in most English museums and books. From Australia, it is only known in England from the one collection Mueller (Fig. 624).

SYNONYMS AND MISTAKES.

I have seen somewhere several additional synonyms for Australian species, based, it was claimed, on slight variations in the common species. I made no record of them.

Basili, New Zealand, Taylor (Sphaeria), said to be same as Sinclairii and caespitosa.

caespitosa, Tulasne. Mentioned incidentally only from New Zealand. No specimen in his herbarium or known to me. It is said to be same as Sinclairii (q. v.).

entomorrhiza. Usual English tradition (not original of Dickson) = gracilis.

Forbesii, New Zealand, Berkeley = Cordyceps Robertsii, apparently an inadvertence.

Fig. 626.

Hawkesii, Tasmania, Gray. See page 6. Appears to me a condition of Cordyceps Gunnii.

Hügelii, New Zealand, Corda = Cordyceps Robertsii, but used by Saccardo and Massee, who thus got "priority" hind end first.

innominata, Tasmania, Taylor (Sphaeria) = Cordyceps Taylori.

Lacroixii, Japan, Patouillard = Cordyceps Gunnii.

larvarum, New Zealand, Westwood (Sphaeria) = Cordyceps Robertsii, and a chance for a juggle.

menesteridis, Australia, Mueller = Cordyceps gracilis.

Sinclairii, New Zealand, Berkeley. No specimen known, only the figure (reproduced Fig. 626), which is evidently the conidial form of some unknown Cordyceps. It was described as a Cordyceps, but strictly speaking the specimen was an Isaria. It grew on Cicada, and may be the conidial form of Cordyceps sobolifera, a species common on Cicada in the West Indies and Japan. Cordyceps caespitosa as named by Tulasne is said to have been based on the same collection.

ILLUSTRATIONS.

Fig. 613 (Isaria farinosa) is from a photograph by G. D. Smith, the most skillful fungus photographer who has worked on the subject. Figs. 612, 623 and 625 are from Tulasne, the latter emended by cutting away the lines representing protruding spores, which in the original are misleading. Figs. 619 and 626 are copies from Cooke's copies. Fig. 620 is from the original drawing at Kew. The remainder of the figures are from photographs of authentic material by the writer.

The Collecting of Cordyceps.

This pamphlet will reach many persons, not only mycologists but entomologists, who are in position to secure material for a general knowledge of the Cordyceps. A few words in regard to their collection will not be amiss. Cordyceps have only to be picked up and dried, but as the host is usually buried, care should be taken to dig out the host and forward it, attached to the Cordyceps. Cordyceps change very little in drying, so it is not necessary to send them in alcohol. Simply lay them aside for a few days and dry them, wrap in tissue paper and place in a little box and mail to my address. If one is an entomologist and knows the name of the host it would add much to the interest, if the name of the host is stated on a piece of paper and enclosed with the specimen. All specimens will be named and acknowledged by private letter as soon as received, and published in my writings. Address

C. G. LLOYD,
Court and Plum Streets,
Cincinnati, Ohio.

C. G. LLOYD,
No. 95 Cole Park Road,
Twickenham, England.

INDEX AND ADVERTISEMENTS.

(According to our views, a binominal indicating the genus and species alone represents the name of a plant. According to custom, it is usual to append the name of individuals who are supposed to have named it, and their friends or the collector or some one who has compiled it or juggled it in some way. It seems to me the whole object of many "scientists" nowadays is to append their names to plant names, and so confusing and extensive has this abuse become that mycology has gotten to a very low state, and is liable any day to die of this form of appendicitis. We append the names for the benefit of those afflicted with this disease who wish to use them.)

CORDYCEPS DOVEI, RODWAY, PAGE 10.
CORDYCEPS GRACILIS, GREVILLE, PAGE 10.
CORDYCEPS GUNNII, BERKELEY, PAGE 6.
CORDYCEPS HENLEYAE, MASSEE, PAGE 10.
CORDYCEPS ROBERTSII, HOOKER, PAGE 5.
CORDYCEPS TAYLORI, BERKELEY, PAGE 6.

SYNOPSIS

OF THE

SECTION APUS

OF THE

GENUS POLYPORUS

By

C. G. LLOYD.

CINCINNATI, OHIO, - JUNE, 1915.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

WILLIAM ALPHONSO MURRILL.

You can travel the museums of the world over and you will not meet a pleasanter, more affable gentleman than W. A. Murrill, assistant director of the New York Botanical Garden, in charge of the mycological department. Together we have enjoyed several visits, and I am much pleased to be able to publish his photograph in our series of prominent mycologists. It is quite appropriate to include it in this pamphlet, as Mr. Murrill first came into prominence through his publication on the Polyporus.

THE GENUS POLYPORUS.

In the olden days all fungi with small pores were called Boletus. Persoon divided them into two sections. First. The fleshy species with pores easily separable from the pileus, which constitute the genus Boletus as known at the present time. Second. Those with the pores continuous with the context of the pileus. The latter section was called Polyporus by Fries, which was accepted by Persoon and generally used from the appearance of Fries' Systema up to the publication of the sixth volume of Saccardo's Sylloge (1888).

Fries in his Novae Symbolae (1851) proposed four main divisions of these plants, viz:

Fomes—Perennial, pores in strata.
Polyporus—Fleshy annuals.
Polystictus—Coriaceous annuals.
Poria—Resupinate.

Cooke attempted (a very poor attempt) to arrange the species under these four heads, as genera, and Saccardo adopted Cooke's arrangement. Since the appearance of Saccardo, these four genera have been generally adopted by writers on the subject, and for practical purposes, are about as good for a general division as can be devised.

Beginning with Karsten, 1881, and ending, it is to be hoped, with Murrill in the past few years, several have amused themselves (and others) by proposing innumerable "new genera," based chiefly on the old sections and subsections of the Friesian system, getting up all kinds of excuses to give them new names and add their own names to each species as the "authority." As it is very rarely that any of these proposed changes have been based on a new principle of classification, and as they have only added to the confusion with a jargon of new names, mycologists as a usual thing, have honored such work by ignoring it. Personally, I do not consider it of enough importance to cite in detail even as synonyms.

The genus Polyporus, in the sense as intended in Saccardo and found in this pamphlet, consists of soft, fleshy species, annuals, excepting in the tropics. The distinction between Polyporus and Polystictus, which Fries evidently had in mind, is that when growing, Polyporus is soft and fleshy, and usually moist, and becomes brittle when dried, while Polystictus has dry, coriaceous or leathery textures when growing. It is not always easy to decide on these characters especially from dried specimens, and in practice the thick (or rarely thin) species that dry brittle are called Polyporus, while the thin, flexible species are called Polystictus. We have considered the species of Polyporus under two general heads. First: those with a stipe which we published in a previous pamphlet, The Stipitate Polyporoids, and, second: the sessile species, included in this pamphlet.

The history of Polyporus species is the general history of mycology. In Europe, Persoon and Fries defined the most of the species, and the greater part of them are taken in the sense of these authors. Most of the species can be easily and definitely traced back to these authors, but in the section of white species it is very difficult to decide from the scanty and often conflicting evidence what particular species they had in view. Two men, in recent years in Europe, Bresadola and Romell, have given critical studies of the history and identity of the Friesian species. We have endeavored to learn the views of these men, as well as to hunt up and study all the evidence that exists, and to form our own conclusions. That they are not always in accord is unfortunate, but unavoidable. These differences will always exist, as long as each author feels that it devolves on him to take names in their original meaning, for in a number of cases investigators will arrive at different conclusions.

In the United States the early work was done by Schweinitz, who proposed as "new species" everything he did not determine (or misdetermine) as being European. He got the cream of the valid, endemic species, and would no doubt

have gotten more, had he in all cases left specimens from which his species could be decided. The next work by Berkeley, through Curtis and Ravenel, established a tradition about American species which was mainly pursued by the following generation, Peck, Ellis and Morgan. Most of it was correct, but in some cases American names were used for plants of Europe, the identity of which was unknown to Berkeley. In quite recent years Murrill has published much. He has proposed so many new names and made so much confusion that no one pays much attention to them. At the present time young Overholts is doing much better work on the subject.

As to foreign species it is the same old story. Collections drift into Europe and the largest part are discovered to be "new species" "described" and "named," scraped up and embalmed in pidgin Latin in Saccardo. As the descriptions usually tell nothing, and not one out of a hundred can be determined with any probability of truth, the embalming process in Saccardo is the last that is ever heard as to most of them. When the specimens are preserved in accessible museums, we have hunted them up and studied them, and have adopted the names for those that we think have merit. The naming of "new species" in Europe, however, in the past, appeals to me as very much of a hit-and-miss affair. In my belief, Bresadola is the only one who has indulged in this pastime who has made any serious endeavor to learn the identity of the "old species."

Berkeley named the most of the foreign species, and there are relatively few that are at all common that did not at some time drift in to him. As his herbarium has been well preserved, Berkeley's names may be had for most of the common species. The species of Europe and the United States are, I believe, all named (or multinamed), excepting perhaps a few, rare ones in the outskirts of Eastern Europe or Western United States. As to foreign ones, the common ones are named, but there is an embarrassingly large number of rarer collections that I receive from foreign countries, particularly from Japan, that I am unable to identify with any named specimen that I have found in the museums. Some of them have been published in this pamphlet, but most of them remain unnamed in our collection.

We have divided the genus Polyporus into five general divisions following closely the lines used in dividing the genus Fomes, and basing the general divisions on color features of the context, pores and spores. The spores of the various species are recorded as we measure them, and are intended only to give an idea of shape and size. They vary a few microns in size on the same slide, and our measurements are of the largest spores that we note. In all the colored spored species and in most of the soft, fleshy, white spored species, the spores are usually in abundance. Where spores are not found it is generally in species of a hard, dry texture.

As in most groups of fungi, even the Agarics, the hymenium of some species is characterized by the presence of deeply colored setae, corresponding to those found in the Thelephoraceae and forming there the "genus" Hymenochaete. Ellis proposed a "new genus" based on them, but no one ever followed him, as those who work with Polyporus, do not take setae so seriously as those who work on Thelephoraceae. A few species have large hyaline, many celled "cystidia" on the hymenium. No one has proposed a "new genus" based on these "cystidia" in Polyporus, although it has been done when they occur in Hexagona. Other species have deeply colored setae-like hyphae imbedded in the tissue, similar to those found in Fomes pachyphloeus (cfr. Fomes Synopsis, p. 261), and forming the genus "Oxyuris" for McGinty. I have not heard whether he proposed to make a "new genus" for these species in Polyporus or to include them in his Fomes genus.

When definite color terms are used in this pamphlet, they are taken from Ridgway's Standard, and the same remarks are applicable under this head as in the preface of our Fomes pamphlet.

I have worked several years trying to get the straight of the species of Polyporus, and there has not been much trouble excepting in connection with the white species. Some in this section, viz., chioneus, trabeus, lacteus, destructor, albidus, etc., are not as clear to me yet as I wish they were. We have in our museum abundant specimens, particularly from the United States, more in number perhaps than in all other museums combined, and we extend our thanks to our many correspondents who have aided us with specimens. It is only by constantly handling specimens that one gets thoroughly familiar with them and their characters. We have worked over the specimens in all the principal museums of Europe and the United States, and acknowledge our indebtedness to the various curators of these museums for every courtesy in the work.

This pamphlet is intended chiefly as an arrangement of the species, but we have given notes of the distinctive characters, history and distribution, which we hope will enable others to identify the plants they meet. At the same time we believe that species can only be learned from specimens, and that the simplest way is to send the specimens and have them named, and with the name known, one can read up and learn the characters and the species much easier than to try to work out their names first. I thought when I wrote the Stipitate Polyporoids it would be practical for collectors to name their stipitate species from it, but it seems to me I have since received more misnamed specimens (evidently from the use of this pamphlet) than I did before the pamphlet was issued.

This pamphlet was written about a year ago at Kew, where one has the best facilities for such work, not only the best collection of historical specimens, but the best library, and the most conveniences of every kind. I wish to acknowledge the kindness of Miss E. M. Wakefield for the sketches used in the work and for other aid.

FIRST GENERAL DIVISION.

CONTEXT AND PORES WHITE OR PALE WHEN GROWING. SPORES HYALINE.

We divide them into seven sections, as follows:

Pileus with thin but distinct crust ..... Section 80.

Pileus without distinct crust.

Flesh (dry) fragile, crumbly ..... " 81.
Flesh hard, firm ..... " 82.
Very thin plants ..... " 83.
White, turning reddish in drying ..... " 84.
White, turning bluish in drying ..... " 85.
Flesh dry, soft, and cottony ..... " 86.
Flesh dry, light, and spongy ..... " 87.

SECTION 80. CRUST THIN BUT DISTINCT.

It having been overlooked in our previous pamphlet, we include here Polyporus quercinus which in our text books is placed next to Polyporus betulinus. It is a stipitate plant, and should have been placed in Section 12, Petaloides.

A.—Flesh firm but fragile.

POLYPORUS BETULINUS (Fig. 631).—Pileus thick, applanate, obtuse, attached by a reduced base, or a short stipe, usually about 5-6 inches in diameter, 1½ to 2 inches thick. Surface with a smooth, thin, pale, separable crust, at length brown. Flesh white, soft, but not friable. Pores minute, round, white, when dry slightly darker than the context, 4-8 mic. long. Spores oblong, 2½ x 6, hyaline, smooth.

Polyporus betulinus was so well named and figured by Bulliard that there has never been any question about it, and it has been universally known under this name. Of course, we do not count the jugglers who would change it on a technicality. It is very common both in Europe and America on living and dead birch, and on no other host as far as we know. We have seen somewhere a record of its occurring on another host, but we cannot place it. It seems to be replaced in Australia by Polyporus Eucalyptorum, very similar excepting as to spores.

While it is usually sessile, it is not dimidiate (as Quélet states), for it is really stipitate with a suppressed stipe. Rarely the stipe is developed, and the plant is always attached by a small attachment. The plant starts to grow as a white ball, as shown in our figure 632. When old the pores have a tendency to peel away from the flesh, and the jugglers have made this an excuse for a genus. Compare Polyporus Eucalyptorum in next subsection.

Fig. 631.

Fig. 632.

Polyporus betulinus. Fig. 631 as it grows in natural surroundings. Fig. 632 incipient growth.

ILLUSTRATIONS.—Many, mostly good. Sow. 212; Gillet, etc.; White, Connecticut t. 37 is very characteristic of the plant as it grows. The original Bulliard 312 is fair, but too brown in color.

SPECIMENS.—Many from Europe and United States. (Australian specimens that we have referred here belong to Polyporus Eucalyptorum.)

Compare suberosus.

POLYPORUS ALBELLUS.—Pileus dimidiate, sessile, usually 1½-2 inches in diameter, often imbricate, but rarely, if ever, subresupinate. Surface smooth, with a very thin crust. Color of surface usually grayish or yellowish, sometimes white. Flesh drying white,

fragile. Pores small, round, drying slightly alutaceous. Spores allantoid, 1 x 4-5, cylindrical, curved.

This is the most abundant species we have in this section in the United States, on birch usually. It occurs in Europe, but is very rare. When fresh it has a slightly acrid odor. It accords very well with Fries' account of Polyporus chioneus in Myc. Europ., and is so referred by Karsten and Romell. However, it does not accord with description of the original Polyporus chioneus, and the name having been applied to different plants, we adopt Peck's name, which is the only certain one. The surface is smooth, not "anoderm," but the crust is so thin, a section under the microscope is necessary to clearly show it. It is only about 50 mic. thick. Polyporus albellus is distinguished from the plant we call Polyporus trabeus (cfr. page 301) only by its thin crust. They are, no doubt, extreme forms of the same species.

SPECIMENS.—Many from United States. From Romell, Maire, and perhaps one or two others from Europe.

Compare acriculus, palustris.

POLYPORUS PORTENTOSUS.—Pileus usually large, 3-4 inches in diameter, 2-3 inches thick. Surface with a distinct, thin, pale yellowish crust. Flesh pure white, fragile, chalky. Pores minute, pure white.

This is only known from Australia. It is a species quickly destroyed by insects, and the type at Kew is almost gone. We have the only good collection known, which was from Geo. K. Hinsby, Australia. A good account of this species is given in Cooke's Handbook. As to context, it is quite close to Polyporus immaculatus, but readily distinguished by its distinct crust. This is the largest, white Polyporus known. It is recorded as large as ten inches in diameter.

SPECIMENS.—Australia, Geo. K. Hinsby. The only good collection in any museum.

POLYPORUS TEPHRONOTUS.—Pileus dimidiate, thin, 5-6 mm. Surface smooth, with a thin, but distinct crust, slightly yellowish. Flesh white, soft, brittle. Pores very minute, discolored slightly, with a waxy appearance. Spores not found (allantoid?). This is only known from the type at Kew. There are several collections from Australia, and a large portion of them are semiresupinate. The pores remind us much of those of Polyporus semisupinus.

Compare angustus.

POLYPORUS ELATINUS.—Sessile, but attached by a reduced base (4 x 3 x 1 cm.). Surface with a thin but evident crust, smooth, wrinkled in drying, reddish, ochraceous color. Flesh white, firm, 3-5 mm. thick. Pores small, round, slightly discolored (now), with mouths darker, 6-8 mm. long. Spores abundant, subglobose, hyaline, smooth, 6-7 mic., many smaller, 3-4 mic. Known at Kew from good types, India.

POLYPORUS ORINOCENSIS.—Compare our Synopsis Hexagona, page 36. Has small pores, but is so closely related to the large-pored species (Hexagona cucullata) that we figured it in connection with that species. It is known from but one collection from South America, at Paris, and is probably only a small-pored form of Hexagona cucullata. If ever found again, it might be sought in this section of Polyporus.

POLYPORUS PELLICULOSUS (Figs. 633 and 634).—Pileus sessile (3-4 x ½ x 1½ cm.), with a thin, closely adnate, black crust, beset with scattered, short, erect, black spicules which are of the nature of clusters of tomentum. Flesh white, 1 cm. thick, soft (now), but not fragile. Pores (now) darker than the flesh, but probably white when fresh, small, collapsed in drying, ½ cm. long, separated from the flesh by a dark line. Spores in great abundance, hyaline, small, 5 x 7, many smaller.

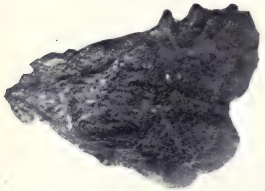
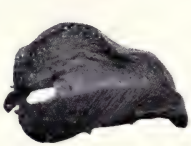


Fig. 633.



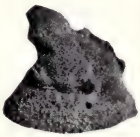
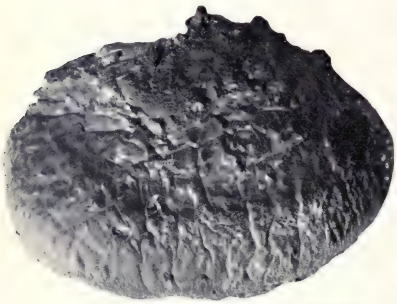


Fig. 634.

Polyporus pelliculosus.

Known at Kew scantily from Australian collections. The crust, of course, is quite different, but the flesh and pores, and the way they dry, their colors, and the abundant spores, all recall Polyporus spumeus. Polyporus spiculifera (Fig. 634) is a thin form with the tomentum collected into very distinct nodules.

Compare spiculifera.



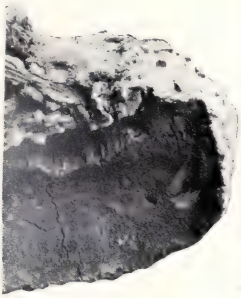


Fig. 635.

Polyporus flavescens.

POLYPORUS FLAVESCENS (Fig. 635).—Pileus ungulate (4 x 6 x 3 cm.), sessile, with a thin, reddish yellow, smooth, papery crust, resembling to some extent the usual Ganodermus crust as to

color. Context white, or pale, firm. Pores small, round, pale, discolored, probably in drying. Spores globose, white, 4-5 mic., tubercular, rough.

There are but few polypores known with rough, white spores—only one other, we believe, in this pamphlet—although there is a section of stipitate polypores (Section 27 of Merismus) with echinulate spores, and one species in Ovinus. Only two collections have reached Europe, first from Brazil—a single specimen which Montagne named as above—and then a collection from Cuba which was composed of smaller, thinner specimens. Berkeley called the latter Polyporus albogilvus. The plant does not occur in the abundant material from the West Indies in the New York Garden.

Compare albogilvus.

B.—Flesh soft, spongy.

(We include here Polyporus quercinus which should have gone with the Stipitate species.)

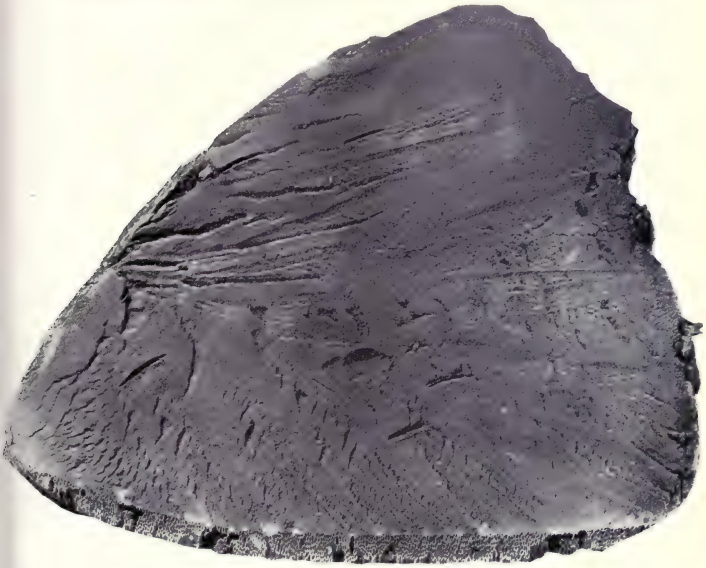


Fig. 636.

Polyporus Eucalyptorum.

POLYPORUS EUCALYPTORUM (Fig. 636).—Pileus ungulate (or thick, applanate), 3-5 inches in diameter. Crust thin, smooth, pale,

at length dark, easily separating. Context very soft, white, spongy, crumbly, fragile. Pores medium, round, white, fragile, 6-12 mm. long. Spores abundant, 8-10 mic., many smaller, subglobose, with granular or guttulate contents.

No type exists of this, but we take it in from the description and specimens to which it applies, of which there are several collections in the museums of Europe. Cooke misdescribed it under the name Polyporus leucocreas. Fries' plant was described from Australia, on Eucalyptus, but there are collections from New Zealand, and one from New Caledonia. A marked feature of the plant is the very soft, crumbly flesh, described by Cooke as "suberose, firm and tough" (sic), which is exactly the contrary of its nature. When fresh, the flesh was said to be "snow-white." Now the specimens are often discolored, and dark isabelline. The crust was described by Fries as dark, and so it is on several specimens we have seen; but on Polyporus spermolepidis, which we take to be same species, it is white. We think the dark crust is a change due to age and exposure.

Polyporus Eucalyptorum is the Australian analogue of Polyporus betulinus, and so similar that we misnamed it, on receipt of the three collections that we have from Australia. The flesh is usually much softer and more fragile, the shape more ungulate; but neither of these two features can be depended on. We have specimens of the two species that cannot be distinguished by the eye. The spores, always abundant in Polyporus Eucalyptorum, are of a different type entirely.

SPECIMENS.—Australia, Edmund Jarvis, J. T. Paul, Rev. James Wilson. All were referred to Polyporus betulinus when received.

Compare caseicarnis, hololeucus, leucocreas, spermolepidis.

POLYPORUS QUERCINUS.—Pileus stipitate, with stem 2 cm. thick, 3 to 7 cm. long. Pileus spathulate, 5-8 cm. wide, 1½-2 cm. thick. Surface smooth, with a very thin, yellowish crust, turning brown when dried. Flesh white, soft, drying light and spongy. Pores small, round, the mouths pure white when untouched, but very sensitive and bruising reddish. In dried specimens the pores become almost black. Spores large, obovate, 5 x 12 mic., with granular contents.

This is a very rare species on oak in Europe, and is quite scantily represented in the museums. We were fortunate enough to find a specimen at Fontainbleau one season, but we have never gotten it from a correspondent. All who find it speak of its rarity. Mrs. Hussey was the first and only one, as far as we know, to find it in England. Her specimen only is at Kew. There is a specimen from Plowright at Berlin. These three specimens are all that we have noted. Although Fries records having found it (rarely), his description was probably drawn from Krombholtz's figure, for he records the pileus as "suberose," "soft then indurated," while the flesh of the dried specimen is very light and spongy. Several have likened the

plant to Fistulina hepatica, but the resemblance is not very close. Mrs. Hussey states the flesh is intensely bitter.

Although Fries places Polyporus quercinus in Section Apus, it always has a stem, and should have been included in my pamphlet on Stipitate Polyporoids. In my specimen the stem is two inches long. A stem is shown on every figure that exists.

ILLUSTRATIONS.—Krombholtz t. 5, f. 3 and 5, and t. 48, f. 11-14; Hussey Ser. 1, t. 52; Boudier, t. 154. All are good, but Boudier's figure is, of course, the best. The pore mouths, however, naturally are white, but when handled or old they become the color of Boudier's figure, which, as to the pore mouths, was evidently drawn from a discolored specimen.

Compare fusco-pellis.

SECTION 81. CONTEXT AND PORES WHITE, OR PALE, FLESH FRAGILE, CRUMBLY.

(Sections 81 to 87 have no distinct crust.)

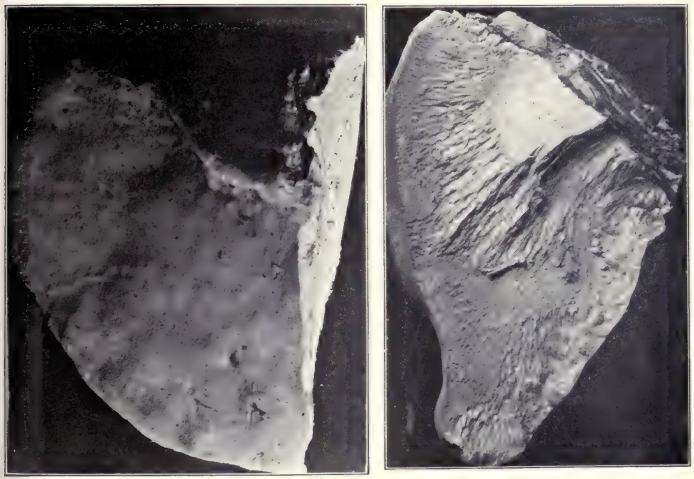


Fig. 637.

Polyporus immaculatus.

POLYPORUS IMMACULATUS (Fig. 637).—Pileus triquetrous, usually thick, an inch or more. Surface white, dull, smooth, anoderm, fragile. Context soft, white, fragile, crumbly. Pores minute, round, white. Spores 1 x 5, allantoid, cylindrical, curved.

This is a tropical species, both of the American and Eastern tropics. It is found in Cuba, South America, Africa, New Guinea, and Philippines. The entire plant is pure white, and reminds one of

a piece of chalk. It has several names. Berkeley called it Polyporus immaculatus, verecundus (?), and Trametes pura; Hennings, Polyporus gogolensis (which fortunately does not have to be used); and Murrill, Polyporus unguliformis.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie.

Compare gogolensis, pura, unguliformis, verecundus.

POLYPORUS LEUCOMALLUS.—This is a tropical species, very close to Polyporus immaculatus in texture and color, being pure white. It is known only from one specimen at Kew, from Cuba, rather thin, 1½ cm. in diameter. The surface has distinct, appressed pale hairs by which it can readily be told from Polyporus immaculatus, with which it has been confused.

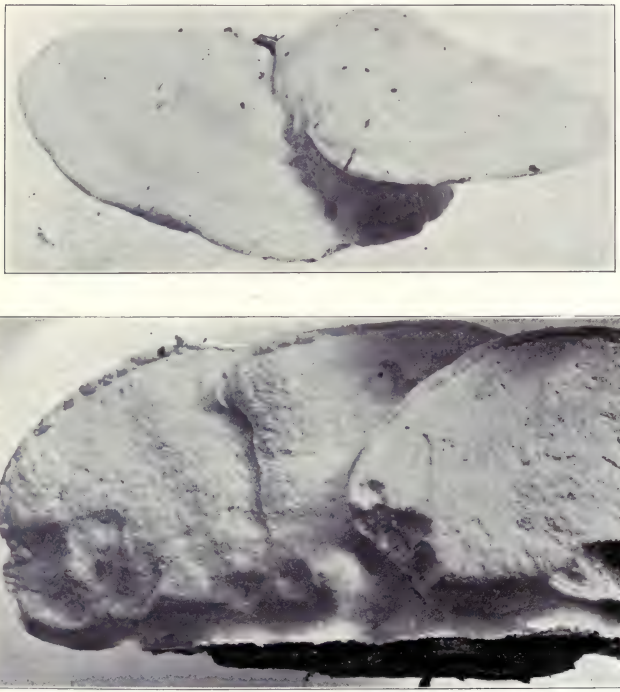


Fig. 638
Polyporus trabeus

POLYPORUS TRABEUS (Fig. 638).—Pileus dimidiate, sessile, triquetrous. Surface anoderm, smooth, dull, soft, minute, pubescent. Flesh white, soft, crumbly. Pores small, round, regular. Spores allantoid, 1 x 4-5, cylindrical, curved.

No white species has given me more trouble to name satisfactorily than has this common, white plant. Polyporus trabeus is our latest decision, and in deciding on this name we are influenced mainly by two facts. The plant is well represented in Sturm, fasc. 10, fig. 28, which Fries cites; and it is a common plant, and Fries records it as common. It is strange that Polyporus trabeus, which Fries states is "frequent," should have practically passed out of current mycology. Bresadola calls the plant Polyporus lacteus, and while we accepted it under protest (cfr. Note 158, Letter 49), we have never been satisfied with it. Romell, in his latest work, and Murrill, take lacteus in the sense of Bresadola. In my belief it neither agrees with Polyporus lacteus as to Fries' description, his figure, nor his (poor) specimen at Kew, nor with his record of the species, in which he states it is "rare."

Polyporus trabeus is a very common plant, both in the United States and Europe. It is very close to Polyporus albellus (see page 294), and has the same pores and spores, but the surface has no cuticular appearance, and is softer, hence we put them in different sections, though we have many intermediate specimens which are hard to refer.

ILLUSTRATIONS.—Sturm, fasc. 10, t. 28 very good. There is a slight pinkish cast that is a little misleading, but the figure, to me, is characteristic. Mez' figure cited is a copy from Sturm, and Britzelmayr is not worth considering. Patouillard t. 244 (as lacteus) represents the plant except the flesh zone, which I have never noted.

SPECIMENS.—Many from United States, and Europe, mostly referred to Polyporus lacteus when received, also two collections (Nos. 82 and 221) from A. Yasuda, Japan, which were referred to Polyporus albellus when received.

POLYPORUS TEPHROLEUCUS.—Pileus fleshy, drying fragile, applanate, imbricate. Surface smooth, dull, pale grey. Pores small, round, ½-1 cm. long, drying white. Spores 1-1½ x 4-5, allantoid, slightly curved.

This is a fairly frequent species in Europe, and occurs also in America. It is readily known by having white flesh and pores which persist white, but the pileus surface is grey or dark. Fries characterized it by villose, grey pileus and flesh at first subgelatinous. We collected once in Sweden a single specimen that when fresh answers this description, but the usual dry collections we have do not show them. We have gathered it on oak in France and birch in Sweden. Fries states it grows on pine and beech. Quélet records it only on pine.

ILLUSTRATIONS.—Sturm's Flora, fasc. 10, fig. 26 (good).

SPECIMENS.—Many, both from Europe and United States.

POLYPORUS ALUTACEUS.—Pileus dimidiate, ½-1 cm. thick, with rough, usually pale yellowish surface, sometimes spotted. Flesh white, soft, friable. Pores minute, round, slightly alutaceous in drying. Spores 2 x 3-4 mic.

This species grows on pine and is rather rare both in Europe and the United States. The European plant, as named by Bresadola, appears to me to accord with Fries' description and the figure that he cites. The American plant was called, by Peck, Polyporus maculatus, then changed to Polyporus guttulatus. On comparison, it is the same as European material. The spores are relatively thicker than most allied species.

ILLUSTRATIONS.—Sturm's Flora, fasc. 10, t. 30 (as epixanthus). It is only fairly good.

SPECIMENS.—Three from Michigan. One from New York, one from Europe.

Compare guttulatus, maculatus, testaceus, tiliophila.

Fig. 639.
Polyporus Tokyoensis.

Fig. 640.
Polyporus cretaceus

POLYPORUS TOKYOENSIS (Fig. 639).—Pileus applanate or ungulate, 1-2 cm. thick, sessile. Surface dull, friable, white. Context white, very friable, fragile. Pores small, pale greyish, probably discolored in drying. Spores 1 x 5, allantoid, hyaline, smooth.

Based on a collection from S. Kawamura, Japan (No. 29). It is same as Polyporus immaculatus, excepting the different pore color, which is white in immaculatus. It is similar to Polyporus caesius as to color of dried specimen, but has small pores.

POLYPORUS CRETACEUS (Fig. 640).—Pileus ungulate (3 x 3 x 5 cm.), sessile, dimidiate. Surface dull, fragile, no distinct crust, pale greyish alutaceous. Flesh thick, pure white, very soft and fragile like chalk. Pores isabelline, small, round, irregular, 4-5 mm. long, contrasting with the pure white flesh. Spores large, 6 x 10 mic., piriform, guttulate, hyaline, smooth.

This is based on a specimen, donor unknown, from Tasmania. It evidently grew on charred wood. The soft, friable, pure white flesh

reminds one of Polyporus immaculatus, but the discolored pores, tissue, and the spores differ strongly. There are four of these large species with soft, friable, white context in Australasia, cretaceus and immaculatus without crust, and portentosus and Eucalyptorum with distinct crusts.

Compare caesio-flavus.

POLYPORUS DESTRUCTOR.—Pileus effuso-reflexed, watery, fleshy, drying soft and brittle. Pores small, round, fragile, white, drying discolored brownish. Spores elliptical, 3-3½ x 4-5.

Although according to reputation and name this is a characteristic disease of house timber, said to soften and destroy the wood in the manner of Merulius lacrymans, I think it is the victim of a bad name and reputation. Schraeder started the story in 1794, and the reputation has been current in our books to this day. It is so rare that it can do little harm even if it is true. Hartig, who wrote the principal work on fungi that destroy wood, does not mention it. Mez recently has given a good account of this rare species, which he states he found but twice. The only collection I have is from Erik Haglund, Sweden. The main difference, by which the plant can be told from similar species, is the discoloring of the dried pores.

ILLUSTRATIONS.—Krombholz t. 5, fig. 8, cited by Fries, is the color of the dried pores, not the pileus or flesh, which are white. I think, also, the pores are probably white when fresh. Mez' fig. 42 is a photograph showing habits of the plant. Sturm fasc. 10, t. 27, is doubtful to me.

SPECIMENS.—Only one collection from Erik Haglund, Sweden, and that broken in pieces.

POLYPORUS MINUSCULUS.—Boudier gives an excellent description and figure of this little species found in a hot house in France, and no doubt exotic. It is very small, only 1-3 mm. in diameter, pendant, affixed by a small attachment. The little specimens each consist of a few long, rather large, tubes. Spores are globose, 4-6 mic., apiculate, guttulate. The little plant is hardly analagous to any other known species. (Cfr. Bull, Soc. Myc. France, 1902, p. 141, pl. 6, fig. 3.) It has never been refound.

POLYPORUS KMETII is a rare plant in Europe, known to none but the author. It has white flesh, hyaline spores, 2½ x 4 mic., orange surface, covered with dentate processes, and would be most easily recognized if ever met again. It grew on oak in Hungary. We have seen no specimens.

SECTION 82. CONTEXT AND PORES WHITE OR PALE. FLESH DRYING HARD, FIRM.

A.—Surface anoderm, or pubescent with projecting hyphae.

POLYPORUS ALBIDUS.—Pileus white, dry, hard, with a dull but smooth surface, no distinct crust. Flesh white, hard, unchangeable. Pores round at first, at length sinuate, and splitting. Spores 3 x 5, hyaline, smooth.

This seems a frequent species in Europe, on Abies usually. The pilei are often 3-4 inches in diameter, 1-2 inches thick, and sometimes subapplanate. The flesh is said to be dry from the beginning, not soft

and watery, as are most species in this section. We take Polyporus albidus in the sense of Bresadola, who seems to take it in the sense of Schroeter, who says he takes it in the sense of Trog. It is not in the sense of Fries I judge from the description, but the picture Schaeffer t. 124, which Fries cites as good, seems to be the plant. We have a number of collections of Polyporus albidus from Europe, but few from the United States, where it is mostly southern.

I have seen many French determinations of this plant as Polyporus stipticus (surely not Persoon), and it is Polyporus palustris for Mr. Murrill (not Berkeley).

ILLUSTRATIONS.—Schaeffer 124 seems to be the plant, although most of the specimens are too thin.

SPECIMENS.—A number, from Europe mostly. New York, S. H. Burnham; Louisiana, E. Bartholomew.

Compare anceps, palustris.

POLYPORUS MARIANI (bis). Pileus dimidiate, imbricate, with a dull, white surface. Flesh white, hard. Pores white, medium, round, or elongated. Spores (B) 2-2½ x 5-8.

This is a white species, described from specimens on the live oak in Italy. It is only known from the originals. It appears to us very close to Polyporus albidus except as to host. The entire plant remains white in drying.

ILLUSTRATIONS.—Gior. Bot. Ital., vol. 7, t. 11.

SPECIMENS.—Cotype from Rev. Bresadola.

Fig. 641.

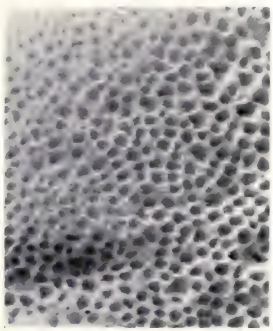


Fig. 642.

Polyporus spumeus. Fig. 641 surface fibrils (X6). Fig. 642, pores (X6).

POLYPORUS SPUMEUS.—Pileus pure white, discoloring in drying. Surface (Fig. 641) floccose, with loose, incised fibrils. Flesh pure white. When growing, soft, but becoming hard and discolored in drying. Pores (Fig. 642) small, round, with uneven edges, white,

drying discolored and agglutinate. Spores ovate, or subglobose, hyaline, transparent, smooth, 6-7 mic., with large guttae.

European mycologists agree on Polyporus spumeus in the sense of Fries at least. It is evidently a heart rot, and always comes from decayed portions of living trees. In the park at Upsala it prefers the maples; rarely we found it on poplar. It has never been observed by me on elm, where Sowerby and Fries record it. In America, in the East, it seems frequent on apple trees, and is one of the few fungi that infect the apple tree stems. We have never collected it out West, but have specimens. Fries refers it to Sowerby's figure (t. 211), and, from Sowerby's remarks rather than from his figure, we think correctly. It first appears as a soft, white, rounded or amorphous mass, but it is not strictly correct to state that "it oozes as a soft, frothy mass."

The spores, each with a large gutta, are characteristic, also the incised, floccose surface such as shown in our figure 641, which disappears in dried specimens. The pores and flesh both discolor in drying, the pores slightly darker than the flesh.

SPECIMENS.—A number from Europe and three thick forms from United States.

ILLUSTRATIONS.—Two are cited, Sowerby 211 and Berkeley's Outlines, t. 16, fig. 4. Neither well represent the plant, showing dark surface and tubes. The noticeable feature of the fresh, growing plant is that it is pure white.

Compare mollissimus.

VAR. MALICOLUS.—The usual American form of Polyporus spumeus is thinner than the European plant and usually grows on the apple tree. The flesh is usually less than 2 mm. thick, and the spores are smaller, measuring 4-5 mic. Otherwise it is the same as European plant as to color, surface, appearance, pores and peculiar, guttulate spores. It is the white species that occurs on the apple tree in New England. It occurs less frequently further west, and on other hosts. It is the basis of Polyporus galactinus of Murrill's work, a mistake, however, for it is quite different from the true Polyporus galactinus.

SPECIMENS.—We have twenty collections from the United States, mostly from the New England States, and a number where apple is stated to be the host, a few on chestnut. We do not know this thin form in Europe. We have also three American collections with thick flesh corresponding to the plant in Europe.

POLYPORUS SPRAGUEI.—Pileus when growing, white, but dried specimens are dirty white, or cinereous. Surface hard, rough, uneven, with no distinct crust. Flesh white, drying white, hard, firm, rigid. Pores small, round or angular, white, drying discolored, cinereous. Spores subglobose hyaline, 4-5 mic.

This is a rather frequent plant in the United States, and when fresh is decidedly malodorous. It sometimes occurs in abundance on beech, around Cincinnati, and is quite large—a foot or more in diameter. We have only found it on beech, but Murrill records it on oak and chestnut. For years the plant was in our collection as Polyporus foetidus, as we could get no name for it, every one to whom we sent it calling it a different name. It is Polyporus epileucus of Morgan's flora. Murrill was the first man to get it right in the United States, and we first learned it from specimens that he had named. We after-

ward confirmed it at Kew, where the type is in good condition. The species is unknown to us from Europe.

SPECIMENS.—Many from United States.

Compare sordidus.

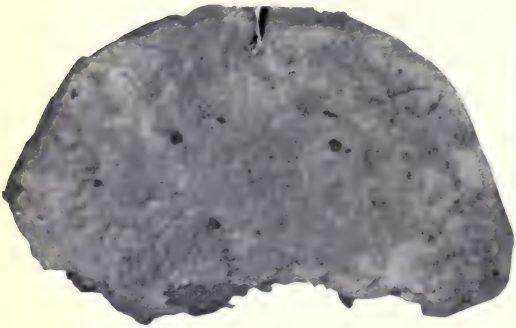


Fig. 643.

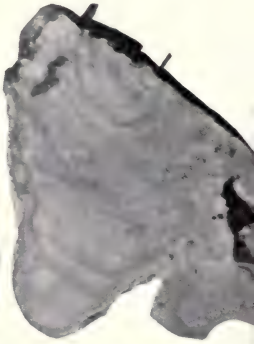


Fig. 644.

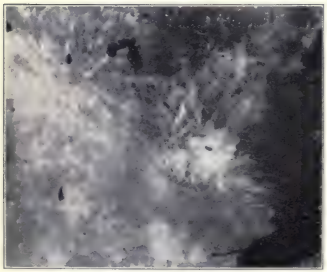


Fig. 645.

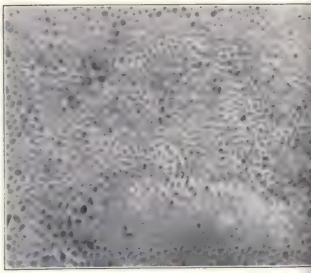


Fig. 646.

Polyporus galactinus. Fig. 643, upper surface. Fig. 644, section. Fig. 645, fibrils (X6). Fig. 646, pores (X6

POLYPORUS GALACTINUS (Fig. 643).—Pileus sessile, 3 x 4 x 1 inches, hygrophanous when growing. When wet, grey; when dry, white. Edge thin. Surface snow-white, and pubescent (Fig. 645 X6) when dry; when wet, grey, and pubescence does not show. Flesh soft, firm when fresh, zonate in drying. Pores (Fig. 646 X6) minute, round. Spores subglobose, 3½ to 4 mic., guttulate.

This is our most frequent, white species around Cincinnati, growing late in the season on very rotten logs. It is quite hygrophanous. It is similar to Polyporus spumeus excepting in habits, and has much

smaller spores (compare Note 147, Letter 49). We do not know this species in Europe. The flesh dries hard and contracts much in drying.

SPECIMENS.—Mostly our own collection, it being our most common, white species around Cincinnati.

POLYPORUS CALKINSII.—Pileus usually applanate, sometimes ungulate, varying from one to four centimeters thick. Surface smooth (or slightly rough), but with no distinct crust; ochraceous in dried specimens. Flesh white, soft when growing, but drying hard and rigid. Pores very minute, the tissue isabelline, the mouths adustus, drying very hard and rigid. Spores globose, hyaline, 3½-4 mic.

Calkins sent this plant abundantly to Ellis from Florida twenty years ago. Ellis named it Polyporus Calkinsii, but did not publish it. It was published by Murrill, also, as Polyporus Palmarum, Polyporus nivosellus, and Trametes lignea. The latter two are thicker and of different shape, but we believe all have the same essential characters, and appear to us to be the same plant. It is quite a common species in the American tropics and often on palms, but occurs also in the East. We have specimens from Malay, which we referred at first to Polyporus ostreiformis; but the type of ostreiformis is not the same to us.

Compare ligneus, nivosellus, Palmarum.

POLYPORUS OSTREIFORMIS.—Pileus sessile, applanate, about 7-10 mm. thick. Surface rough, dull, greyish, or with adustus spots. Flesh hard, rigid, tough, greyish white. Pores minute, greyish. Spores globose, 4-4½ mic.

This is a species of the East, quite similar to Polyporus Calkinsii of American tropics, but with different surface. The name has little application. It has not much more resemblance to an oyster than it has to a shingle.

SPECIMENS.—Java, Dr. J. van Breda de Haan (compared with type at Kew), Dr. van Leeuwen; also two doubtful collections from Japan.

Compare griseus.

POLYPORUS SUBMURINUS.—Pileus white, slightly cinereous, drying darker (murinus). Surface anoderm, no distinct crust, rough, uneven. Flesh white, drying hard, with a faint cinereous tinge. Pores small, round, drying hard and firm. Spores 3½ x 8, hyaline, straight, smooth, cylindrical.

This is a plant of the American tropics. We have collections which we made in Florida, and which are all we have. It is quite close to Polyporus Spraguei, in fact, liable to be confused with it, but was put in a different genus by its author. It is also quite close to Fomes abruptus of the East.

POLYPORUS FUMOSUS (Fig. 647).—Pileus thin, smooth, with dull, soft surface. Context, when dry, hard, firm, but brittle; white when fresh, darker when dried. Pores small, round, irregular, white at first, but becoming fuliginous, or dark, in drying. Spores 2½ x 5 mic.

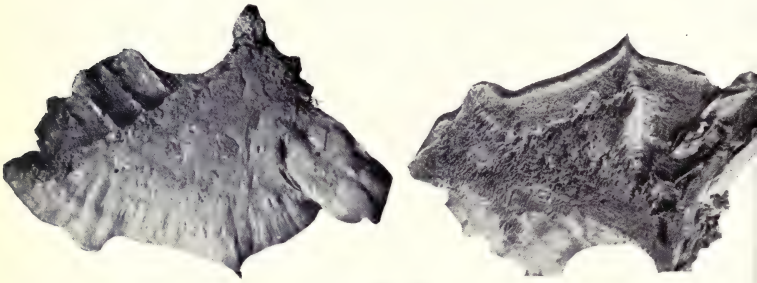


Fig. 647.
Polyporus fumosus.

Polyporus fumosus is quite a frequent plant, usually on willow. It is the same, in fact, as Polyporus salignus, with small pores. When it is in its prime, and growing, it is white; but on drying it turns more or less smoke colored. It is often confused with Polyporus adustus, and many specimens of Polyporus adustus in the museums are labeled as being Polyporus fumosus. Dried specimens may be confused sometimes, but the difference is marked in the fresh plant. Polyporus adustus has deep, smoke colored pores when growing; Polyporus fumosus has white pores, turning smoky in drying, but when dry rarely deep enough in color to be confused with Polyporus adustus. With Polyporus salignus, however, the case is different. It is the same plant as Polyporus fumosus, with larger pores. When growing white, it is usually called Polyporus salignus. In drying or after it turns "smoky" it becomes Polyporus fumosus. When fresh, Polyporus fumosus has a pleasant odor, as noted by Persoon.

Compare apalus, cineratus, demissus, pallescens, pelleporus, rhinocephalus, simulans, subsimulans, terebrans.

POLYPORUS SALIGNUS.—This in the original idea was a white plant growing on willow, the other characters the same, but with large, sinuate pores. In context and color changes it is the same as Polyporus fumosus, and no distinct line can be drawn between it and Polyporus fumosus.

Compare albus, imberbis, puberula.

POLYPORUS HOLMIENSIS (Fig. 648).—Pileus imbricate, thick, subunguliform, hard. Flesh white, with dark lines running through it, also a dark line between the pores and context. Pores and color characters as in Polyporus fumosus, of which it is only a form.

We do not know in Europe a plant agreeing with Fries' description of Polyporus holmiensis, but we have one very abundant collection made at Albany, New York, on elm. It grew imbricate for a foot or more. When fresh it was white, but in drying takes the characteristic color. It must be a rare form, for Prof. Peck never met it. We have it also from Minnesota.

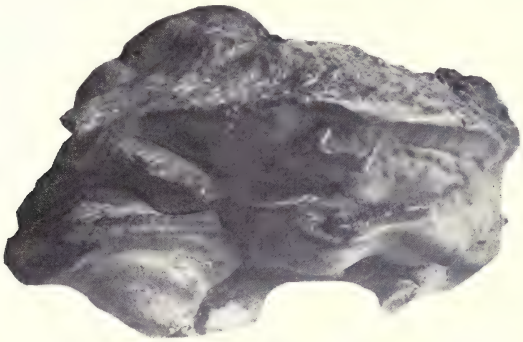


Fig. 648.

Polyporus holmiensis.

POLYPORUS AMESII.—We have one marked collection of Polyporus fumosus, that agrees exactly with the figure that Klotzsch gives, t. 392, of Polyporus fumosus. The pubescence is stronger than in the usual plant, and the fuliginous pileus is not due to a color change in drying, as ordinarily, but is evidently the natural color of the growing plant. When we received it we matched with Klotzsch's figure and decided that it was the true Polyporus fumosus. We have since, we think, learned Polyporus fumosus better.

SPECIMENS.—Brooklyn, N. Y., Frank H. Ames.

POLYPORUS FRAGRANS.—In the original signification, with large daedaloid pores, this was a fragrant form of Polyporus salignus. All this group of plants, Polyporus fumosus and salignus, and even Polyporus adustus at times, have a fragrant odor, and they are all liable to be named Polyporus "fragrans."

Compare puberula.

POLYPORUS EPILEUCUS (Fig. 649).—Pileus thin, white or alutaceous, drying ochraceous, often with effused base. Surface anoderm, rough. Flesh firm, tough, yellowish in dried specimens. Pores small, round or elongated. Spores 2½ x 5, reniform, hyaline, smooth.

This we believe to be a rare species. We found it on beech at Femsjo, and it appears to correspond fairly well with Fries' description. We only know the plant from a few collections. When fresh it was white, but became yellowish in drying. This plant in Europe has been called Polyporus Hohenialus. We have collected once only, on

beech, in the United States, a plant that we believe on comparison to be the same species (Fig. 649). We make the spores smaller, 2 x 3½, and the pores were larger, but the dried plants can hardly be told apart. Our American plant was also more alutaceous when fresh.

Fig. 649.
Polyporus epileucus.

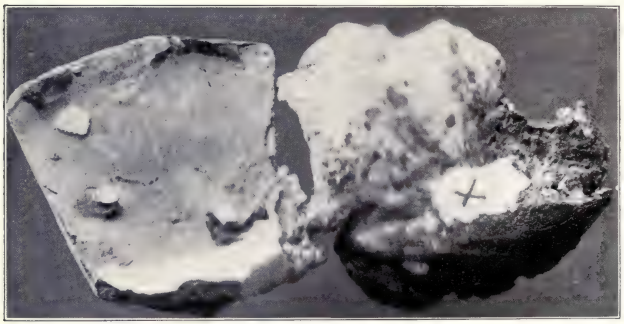


Fig. 650.
Polyporus nivosus.

POLYPORUS NIVOSUS (Fig. 650).—Plant white, with smooth, white surface, no crust. Context hard, firm, white. Pores minute, white. Spores (?) globose, smooth, hyaline, 6-7 mic.

A small plant known to us only from Brazil. It is 2-3 cm. in diameter, 1-2 cm. thick. The entire plant dries white. We have a specimen from Rev. Thiessen, Brazil, which we have compared with the type at Kew and found the same. We question the recent determination from West Indies. There is no indication of any "punky" context in Polyporus nivosus, and the two collections at New York from Cuba are misreferred here.

NOTE.—We have a collection from Rev. Rick, Brazil, which has been referred to Polyporus nivosus, but which on comparison at Kew seems different. The abundant spores are globose, 3½ mic. irregular. Not found by us in type of Polyporus nivosus. Color of flesh deeper yellow than in nivosus.

POLYPORUS CREMEUS.—This has same color, texture, pores, and abundant cystidia as Fomes connatus (which see in Fomes pamphlet), but the spores are globose, 3½ mic., about one half the size of those of Fomes connatus. It was first referred to a Polyporus form of Fomes connatus, afterwards named in mss. as above. I have several collections from Rev. Rick, Brazil.

POLYPORUS CAESPITOSUS.—Pileus white, sessile, imbricate. Surface dull, no distinct crust. Context hard, white, about 2 mm. thick. Pores minute, white, 1-2 mm. long. Spores (teste author) ovoid, 5 x 7 mic.

The pilei are about 2 x 3 x ½ cm., and imbricate (rather than caespitose). The plant is only known from Philippine collections, but why referred to "Trametes" is a mystery to me.

POLYPORUS ELLISIANUS.—Pileus effused, adnate with triquetrous, rigid pileus. Surface uneven, smooth, hard, brown. Context hard, white. Pores small, round, drying darker than the context.

Known from one collection in Ellis' herbarium, which he found on pine. It impressed us as being a good species, although we have but a slight recollection of it.

Compare Polyporus osseus, Stipitate Polyporoids, page 191, fig. 496, which is imbricate, sessile, but has the pileus reduced to a small attachment. It might be sought in this section. Compare also Brenningii and obducens in the synonyms.

B.—Surface strigose with brown hairs.

POLYPORUS SETIGER.—Pileus dimidiate, sessile (3 x 4 x 1 cm.) Surface hispid, with short, brown, strigose hairs. Flesh firm, white, hard. Pores small, soft, fragile, discolored (in drying, no doubt). Spores allantoid, 1 x 4, curved.

In Europe or the United States there is no species similar to this with white flesh and brown, strigose pileus. The types are from New Zealand, at Kew, and only known from one collection. Polyporus atrostrigosus, also from New Zealand, but known from scanty material, is very similar and probably the same species.

Compare atrostrigosus.

The three following divisions differ from the usual type of related plants so much that a "new genus" could be based on each of them.

C.—Spores large, hyaline, truncate, corresponding to "Ganodermus" spores. Fomes Ohiensis is the only other known species with similar spores.

POLYPORUS OCHROLEUCUS (Fig. 651).—Pileus usually well formed, regular, ungulate (3 x 4 x 1½-2 cm.) Surface with indistinct crust, smooth, or more or less appressed, strigose, fibrillose, faint indications of zones. Color usually pale, with a slight ochraceous tint, rarely decidedly yellowish. Context thin, hard; at first pale, in old specimens becoming dark. Pores small, ¼ mm., regular, long,

minute, rigid. Spores peculiar, oblong, truncate at base, 8 x 16 mic., hyaline.

It is a frequent plant in the East, Australia, Africa, India, Ceylon, etc., but does not occur in the American tropics. It is a Polyporus or perhaps a Trametes, and has been called both. It is usually of a season only, and the old specimens turn black. Both Patouillard and Berkeley discovered "new species," both based on old, effete conditions of Polyporus ochroleucus. The spores are always abundant and are peculiar, and are in reality white "Ganodermus" spores. There are but two species known with such spores, Polyporus ochroleucus of the East and Fomes Ohiensis of America. If the sections of polypores are ever arranged strictly on the relationships of the species, these two species will form a "genus" on the same character on which rests the "genus" Ganodermus, excepting that the spores are not colored, but hyaline. Both in its general appearance and the regularity of the pores there is a resemblance between this plant and Polyporus (Ganodermus) ochrolaccatus.

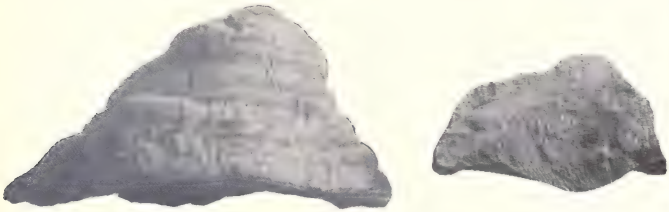


Fig. 651.

Polyporus ochroleucus.

Usually it is a Polyporus, but we have one collection which shows distinct, annual layers, making it a "Fomes." The surface is usually smooth, sometimes strongly rough, fibrillose, and sometimes it is reddish, stained. The spores of weathered specimens become slightly colored. It has a strong leaning toward "Ganodermus" in more than one respect.

SPECIMENS.—Australia, Edmund Jarvis, Miss E. I. Benham, H. B. Williamson, J. T. Paul, Miss Margaret Flockton, J. G. O. Tepper; Japan, J. Umemura, A. Yasuda, S. Kawamura; Ceylon, T. Petch; Africa, Rev. C. Torrend, A. J. T. Janse.

Compare Brisbanensis, Kerensis, Léveilléi, also Fomes compressus.

POLYPORUS VERSISPORUS.—Pileus ungulate, dimidiate (about 2 x 4 x 2 cm.) Surface with a reddish stain, hard, but no distinct crust. Context pale, isabelline, hard. Pores minute, 8-10 mm. long. Cystidia, none. Spores cylindrical, 4 x 8-10, hyaline, straight.

Based on a collection (251) from A. Yasuda, Prov. Tosa, Japan. In general appearance it is so close to Polyporus ochroleucus that I at

first took it to be this species. Same shape, size, context, and general coloration, though darker. On comparison, the pores are more minute, but the main difference is in the spores, which are entirely of a different type, shape, and size.

Compare Delavayi.

D.—Pileus a hollow globe, bearing the pores on upper side of the interior.

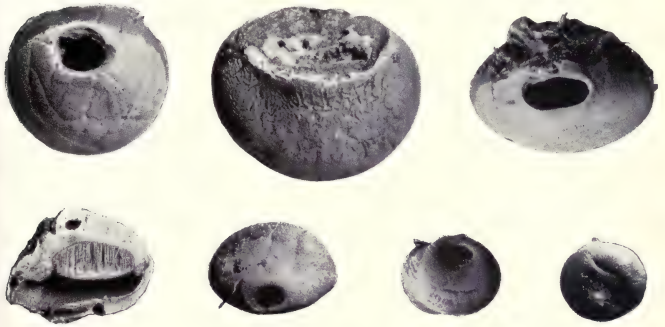


Fig. 652.
Polyporus volvatus.

POLYPORUS VOLVATUS (Fig. 652).—Pileus a hollow globe, with an opening behind, bearing the pores on the upper side of the interior. Sessile or with a false stipe. Surface smooth, with a thin crust, usually the upper portion only colored with a reddish brown, resinous stain. Pores small, slightly darker than the context, and with darker brown mouths. Spores oblong, 4 x 12, hyaline, smooth.

This most curious Polyporus occurs on spruce, both in our eastern, western, and northern States. It seems to be absent from the South. It is found also in Japan and China, but is unknown from Europe. It proceeds from perforations of the bark caused by a beetle, and Mr. Kawamura, of Japan, writes me that in Japan it is usually stipitate, the stipe penetrating the hole. We think it will prove that this is a false stipe of a mycelial nature, something like the mycelial core that occurs in Polyporus rheades. As we have in a previous publication given a history of the mistakes that were made in naming the plant, we shall not repeat them here.

SPECIMENS.—A number, mostly from California, Canada, and New England. Japan, A. Yasuda.

Compare Helix, inflatus, obvolutus, Torreyi.

E.—Trametes.

The following three species are (doubtfully) better classed in Trametes on account of their "punky" flesh, but are apt to be sought in this section of Polyporus.

TRAMETES SUAVEOLENS.—Pileus usually applanate, about an inch thick. White when growing. Surface anoderm, hard, but minutely pubescent and soft to the touch. Context white, dry, corky-punky. Pores firm, rigid, medium, round. Spores 3-4 x 10-12, cylindrical, curved.

It is a common species both in Europe and the United States, always on willow. It is quite fragrant when fresh, odor of anise, and is easily recognized. When in its prime it is a pure white plant, but old and wintered specimens turn dark. The surface is soft, pubescent, and in northern Europe the pubescence is longer and might well be described as villose. Fries' type, in the British Museum, is of this nature. We do not seem to have this villose form in the United States.

ILLUSTRATIONS.—Sowerby, 228, pores larger than usual; Boudier, 163, drawn from a discolored specimen; Gillet, 473, the best. Many others.

SPECIMENS.—Many, from United States and Europe.

TRAMETES ROBINIOPHILA (Fig. 653).—Pileus ungulate, white, 2-3 inches thick, with dull, white, mat surface. Context white, drying soft and punky. Pores minute, round, 4-6 mm. deep, white, drying isabelline or darker than the context. Spores subglobose, 7-8 mic., hyaline, transparent, with large guttae.

The locust (Robinia pseudacacia) is the only host that bears this species. It is common in the Middle West. Usually it grows from decayed parts of standing trees, and is usually solitary. It has been known for many years, and was the basis of Polyporus salignus of Morgan's record. Recently Murrill discovered that it was a new species, and named it as above. It is a question whether it is a Polyporus or a Trametes. The punky context is much softer but similar to that of Trametes suaveolens, and for that reason it may be classed as Trametes. We do not know it excepting from the United States.

SPECIMENS.—Many from the United States, all from locust.

TRAMETES CUBENSIS.—Pileus thin, rigid, sessile. Surface smooth, no distinct crust, white, usually with a reddish blotch or stain at the base. Context white, rigid, punky, becoming dark with age. Pores minute, round, rigid. Spores we have never found.

This is a frequent species in the American tropics and southern Florida, and a very peculiar one. When growing it is white, and it dries white, but after some months on herbarium specimens there comes a red stain on the pileus and the plants turn dark, finally getting almost black. Perhaps the stain comes on plants in situ, but we collected it white in Florida and did not recognize it until after some months

Fig. 653.
Trametes robiniophila.

when we noticed the red stain beginning to develop. Montagne described it as white, but the specimen now has a red stain and the context (even the hyphae under the microscope) is dark, almost black. Murrill had a clear idea of the species, and he was the first one who had. There are abundant specimens at New York. Berkeley made one Cuban determination right, but his Polyporus hemileucus in the type idea with "white context" is this plant, although he also cites specimens that are Polyporus valenzuelianus. Old specimens of Trametes cubensis and Polyporus valenzuelianus, both having red stains on the pileus and the context becoming dark with age, are very likely to be confused. Freshly collected specimens, however, can

readily be distinguished by the context, being white in cubensis and olive in valenzuelianus.

Trametes cubensis is a frequent species in American tropics, and abundant specimens are at New York.

SPECIMENS.—Florida, C. G. L.; Brazil, Rev. Rick, Rev. Thiessen; Jamaica, Wm. Kirkland.

Compare albo-incarnata, comptulus, hemileucus, ostreatus.

SECTION 83. VERY THIN WHITE PLANTS.

Excepting Polyporus floriformis, all are largely resupinate, with reflexed, thin pilei.

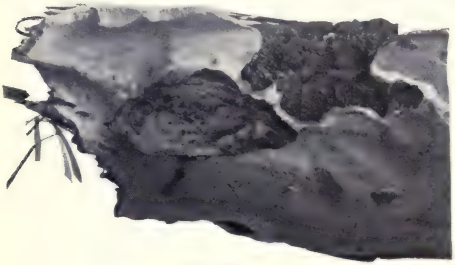


Fig 654.

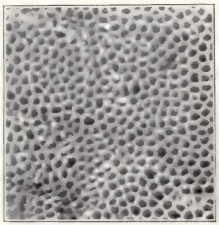


Fig. 655 (Pores X6).

Polyporus semisupinus.

POLYPORUS SEMISUPINUS (Fig. 654).—Largely resupinate, with a thin, reflexed pileus. Pileus pure white, thin, with smooth, dull surface, no distinct crust. Flesh white, drying firm. Pores (Fig. 655) very minute, round, white. Spores 1 x 5, allantoid, cylindrical, curved.

This is not rare either in Europe or United States. It grows on fallen branches and small stems of deciduous wood rather than on logs. It is always largely, sometimes entirely, resupinate, and usually has a rather thin, reflexed pileus. The color is white, drying slightly yellowish. This plant was called by Bresadola (Fung. Kmet) Polyporus chioneus, and it seems to fit the original description. A quite different plant (cfr. Polyporus albellus) is in Fries' herbarium, from Karsten, under this name, and it surely is not Polyporus chioneus "Fries in litt." at the British Museum. We have vacillated for years as to what to call Polyporus chioneus, and finally concluded not to so call anything. For a long while we so named specimens of this species. The type of Polyporus semisupinus at Kew is scanty, but characteristic, and it is not the plant Murrill has taken it to be. It was Polyporus nivosus (erroneously) for Morgan, and Peck named it Polyporus semipileatus.

SPECIMENS.—We have about twenty collections from Europe and United States. Most of them were determined as "Polyporus chioneus" when received.

Compare caesiosimulans, semipileatus.

POLYPORUS FLORIFORMIS.—Pileus thin, white, smooth, usually reduced at the base, unchanged in drying. Flesh thin, 1-2 mm., stiptic to taste. Pores small, round, or slightly elongated, pure white, 2-4 mic. long. Spores 3 x 4 mic., opaque.

This is a thin, white species, growing imbricate and pilei reduced at the base, hence might be sought in Petaloides. It is rare both in Europe and United States, and grows on acerous wood. It was well illustrated by Bresadola (t. 63), who really named the plant, although they write Quélet after it. It has a stiptic taste, and one of my correspondents holds it to be Polyporus stipticus.

SPECIMENS.—Sweden, C. G. L.; Michigan, Dr. C. H. Kauffman; England, H. C. Hawley; New Hampshire, Kate A. Jones; France, Rev. H. Bourdot (as stipticus).

Compare gratus.

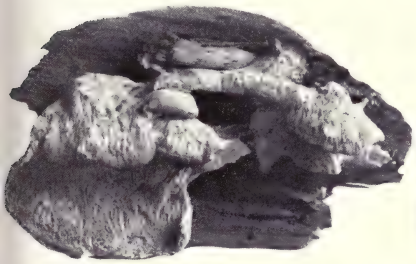


Fig. 656.
Polyporus lacteus.

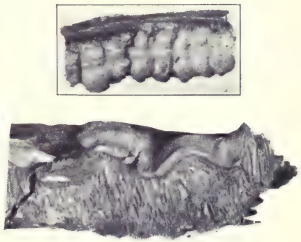


Fig. 657.
Polyporus undosus.

POLYPORUS LACTEUS (Fig. 656).—Pileus effuso-reflexed, white, rather thin, with rugulose, undulate surface. Flesh white, soft, friable. Pores small, round, thin, but on the effused portion elongated, unequal, angular. Spores 1½ x 4-5 mic., allantoid.

This to me is a rare plant, and so stated by Fries. I have but one collection from Otto Jaap, Germany, which grew on poplar. There is a poor cotype at Kew which I have compared with Jaap's collection and found to be the same. It has the same flesh, surface, and spores as Polyporus trabeus (compare page 301), but is a thin plant, largely effusive behind, with the pores on the resupinate portion elongated and angular. I believe it is too close to Polyporus trabeus, but in my view it is not Polyporus trabeus of Fries; and the Fries' view is "Law" nowadays.

SPECIMENS.—Only one, from Otto Jaap, Germany.

ILLUSTRATIONS.—Fries' Icones t. 182, fig. 1. Surface shown more hispid than either our specimen, or his specimen at Kew.

POLYPORUS UNDOSUS (Fig. 657).—Pileus effuso-reflexed, white, narrow, sulcate. Pores smooth, elongated on the resupinate portion. Spores flattened, elliptical, 3 x 4 mic. on broad view, 2 x 4 mic. on narrow view.

This rarely occurs, on the hemlock, in the United States. We have but one collection from Mr. Weir, Idaho, and there are but two at New York. Excepting as to its host and its broader spores, it is very similar to the preceding species.

Thin, white plants with a reddish tendency are found in the next section.

SECTION 84. WHITE WHEN FRESH, BUT TURNING REDDISH IN DRYING OR WITH REDDISH SPOTS ON THE SURFACE.

Two of these species, viz., mollis and fragilis, are very sensitive when fresh, being pure white, but quickly spotting red when handled.

POLYPORUS MOLLIS.—Pileus dimidiate, usually large, 2-3 inches in diameter, 1-2 inches thick, often imbricate. Surface with fine, appressed fibrils. Flesh white, turning red when cut; very soft when fresh, firm but crumbly when dry. Pores large, sinuate, with thin, uneven edges. Spores (Fig. 658) 1 x 5, allantoid, cylindrical, curved.

Fig. 658

This is a white species found on pine trunks. When perfect it is pure white, no doubt, but it turns red when bruised or old; and specimens are usually discolored, always when dry. We have the plant from several correspondents, both Europe and America, but have only collected it once, in Florida. Persoon named the plant at an early date, and when we found it fresh we were impressed that he gave it a quite appropriate name, for it is unusually "soft." It has same general characters, white flesh turning red, large pores, allantoid spores, and has been confused, we are confident, with fragilis by Fries, Quélet, and others (cfr. Letter 43, under Weir). The main difference is general size. Mollis is a large species, with flesh 2-5 cm. thick, growing dimidiate, imbricate. Polyporus fragilis is small, generally subresupinate, with often reflexed pileus, less than a cm. thick.

ILLUSTRATIONS.—We believe there are none. Fries' Icon. t. 182 is Polyporus fragilis. Britzelmayr's cartoon is probably Polyporus fragilis. Hartig t. 9 is Polyporus Schweinitzii, and the pathological men Comes and Voglino we have not looked up, but they no doubt got their idea from Hartig.

Compare erubescens, Smallii, Weinmanni.

POLYPORUS FRAGILIS.—Pileus small, thin, conchoid, usually resupinate behind, pure white, but quickly spotting red when touched. Surface finely pubescent with no crust. Flesh white, soft, quickly turning color when broken, drying discolored, fragile. Pores (Fig. 661) long, sinuate, angular, with uneven edges. Spores allantoid, 1½ x 5, cylindrical, curved, hyaline, smooth.

We found this not rare in Sweden. It grew on pine or spruce, and usually was largely resupinate, sometimes with a narrow, reflexed pileus, rarely with a well formed pileus as shown in Fries' Icones. We have Polyporus fragilis also in the United States. Fries records Polyporus fragilis and Polyporus mollis as equally common in Sweden, but what distinction he made between them is difficult to find either in his description or his Icones. We found but one similar plant in Sweden, and from my observation, and Fries' description and figures, I came to the conclusion that what he called Polyporus mollis was not Persoon's plant, but was Polyporus fragilis. Quélet's description would indicate that he also had only one plant under both names.

ILLUSTRATIONS.—Fries' Icones t. 182, fig. 2, and also we believe fig. 3 (as mollis). Both are more strongly pileate than the usual plant as we found it in Sweden. Sowerby's figure t. 387, fig. 6, here cited, is some abnormality and has no possible relation here.

Compare fimbriporus, Keithii, sensibilis.

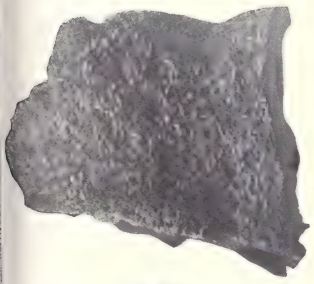


Fig. 659.

Fig. 660.

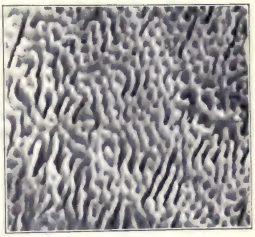


Fig. 661.

Polyporus ursinus. Fig. 660, spores magnified. Fig. 661, Pore mouths of Polyporus fragilis (X6).

POLYPORUS URSINUS (Fig. 659).—Pileus dimidiate (1 x 5 x 7 cm.), white, but turning reddish when bruised and on drying. Surface strongly scrupose, tomentose, with rigid, tufted hairs, which have the same color change as the flesh. Flesh white, soft when fresh, but drying firm and hard. Pores medium large, sinuate, white, discolored in drying. Spores (Fig. 660) narrow-piriform, tapering to the base, 2½ x 8-10.

This we collected growing on pine at Temagami, Ontario, August, 1907. We referred it, from the description, with which it agrees exactly, to Polyporus Weinmanni of Europe, but we find the type of the latter plant at Kew is quite different, being Polyporus mollis. We think Professor Peck has collected the same plant (cfr. Rep. 31) and also referred it to Polyporus Weinmanni.

POLYPORUS FISSILIS.—Pileus soft, white, often largely resupinate behind, 3-4 inches in diameter, an inch thick. Flesh soft,

white, drying sordid, rather hard and "fissile." Surface white, scrupose when fresh, no distinct crust, drying reddish brown, and wrinkled. Pores medium, large, about 1 mm., with tubes 1 cm. long, white when fresh, drying reddish agglutinate with a waxy or resinous appearance. Spores subglobose, 6-7 mic. in American species, 4-5 mic. in European.

This species has had a curious history. It is a European plant, but it is impossible to trace it definitely in European literature; and the name we use was applied to it by Berkeley from an American specimen. The type is a thin section which can be recognized after one learns the species. It was correctly interpreted by Murrill. In Europe it is not recognized in any of the works of Fries, Berkeley, Persoon, Quélet, or Schroeter. Bresadola first referred it to Polyporus rubiginosus (Fung. Kmet.), and in later years to Polyporus albus. We are unable to reconcile it to either. Romell recently named it Polyporus albo-sordescens. The name Berkeley applied, meaning capable of being split in the direction of the grain, is not inapplicable.

In the United States Polyporus fissilis occurs only in our Southern States, on deciduous wood. In Europe it is of a more northern range, and Mr. Romell finds it about Stockholm. We have several collections from Europe.

Compare albosordescens, albus, rubiginosus.

Fig. 662.

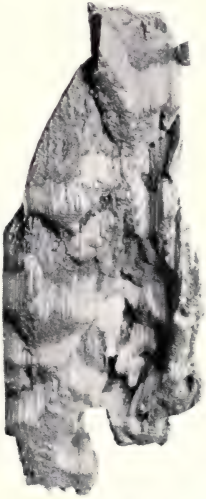


Fig. 663.

Polyporus undatus. Fig. 662, a rare pileate form. Fig. 663, the usual resupinate form.

POLYPORUS UNDATUS (Figs. 662 and 663).—Pileus white, usually resupinate, or with a reflexed pileus, turning dark reddish brown in drying. Pores minute, or hiascent, in an oblique position, mouths cinereous when dried. Spores globose, 3-4 mic., hyaline, smooth.

This species is usually resupinate, hence is generally classed as Poria. In Europe it is rarely known to develop a pileus. It is frequent in United States, always as a Poria. Persoon knew it only from a dried specimen that had changed color. He gave a very good figure of the dried plant (Myc. Europe, t. 16, f. 3). The plant is represented in most museums under the name Polyporus Broomei, having been so distributed by Rabenhorst, No. 2004, also Sydow, No. 5. Bresadola was the first to clear up the subject. He refers here as a synonym Polyporus adiposus, as the plant is known in the English text books. From what we could learn from the material at Kew, adiposus seems to be the same plant. In the United States, Polyporus undatus is a frequent "Poria," forming slabs on very rotten logs. It is common around Cincinnati, but we have never seen a pileate form with us.

Compare adiposus, Broomei, cinctus.

POLYPORUS PALLESCENS, in sense of Romell is very close to Polyporus undatus and appears similar to the eye. The spores 2 x 4 are not the same, however, and I think it is a different species, but very close.

POLYPORUS STIPTICUS.—Pileus dimidiate (1½ x 3 x 4), white, rufescent on margin. Surface dull, smooth, no distinct crust. Flesh white, drying white and hard. Pores, at first, round, small, becoming larger and irregular when old; 6-8 mm. long, white, slightly rufescent in drying. Spores (Fig. 664) (W.) elliptical, and slightly curved, guttulate, 1½ x 3-4.

Fig. 664.

We know this only from English collections, and it is evidently a very rare plant. The flesh is stiptic to the taste, and we are convinced it is the original of Polyporus stipticus of Persoon, as to description, but surely not "passim" on trunks, and not the common white plant usually called Polyporus stipticus in France (cfr. albidus). We have but two collections of this species from England, and one each from France and Sweden, these both doubtful.

SPECIMENS.—England, E. M. Wakefield, Chas. Crossland.

POLYPORUS CRISPELLUS.—Pileus thin, white, usually largely decurrent behind. Surface fibrillose, nearly smooth. Pores medium large, thin, collapsing, discolored in drying. Spores 3½ x 5-6, oblong, hyaline, smooth.

If I correctly refer specimens received from Mr. Weir, this is close to, if not the same as, Polyporus destructor of Europe. It is thinner, the spores slightly longer, but it has the same discolored pores and is probably the same plant. Peck states that it differs from destructor by having a zonate pileus, a feature not shown in dried specimens. Mr. Weir's specimens are very thin, and curl in drying.

SPECIMENS.—Montana, James R. Weir, on pine.

Compare pachycheiles.

POLYPORUS CERIFLUUS.—Pileus sessile with a thin flesh. Surface rugulose with reddish stain. Flesh white, unchangeable, stiptic to the taste. Pores small, somewhat rugulose, white, drying yellowish. Spores not found in type.

This is represented at Kew by a single specimen from South Carolina. There are other collections at New York. We have one from Montana on Populus which we have compared with the type. This has allantoid spores 1 x 5. It is a species quite close to fragilis, but the pores are minute, the white flesh is unchangeable, and the red stain of the pileus is natural, not due to color change.

SPECIMENS.—Montana, on Populus, James R. Weir.

POLYPORUS ARMENIACUS.—Pileus dimidiate, applanate, about 1 cm. thick. Surface pale reddish, soft to touch, minutely velutinate. Context firm, rigid, white with a pale pinkish cast. Pores minute, firm, 2-3 mic. long, the tissue concolorous, but the mouths reddish like the pileus surface.

Only known from types from Brazil at Kew. Other determinations are surely different. Polyporus armeniacus has pale, almost white, flesh and pore tissue, but the surface of pileus and pore mouths are uniformly reddish, possibly a change in drying. As the name armeniacus was preoccupied by the same author, Prof. McGinty proposed to change it to Polyporus Virginii-Cuboni, but the original being Polyporus amorphus, the occupation was only temporary, and the change was unnecessary.

SECTION 85. WHITE WHEN FRESH, TURNING BLUE WHEN TOUCHED.

POLYPORUS CAESIUS.—Pileus sessile, white, turning blue at once when touched, and drying greyish. Flesh soft, white, turning blue when broken. Pores large, sinuate, with uneven edges. Spores 1½ x 5, rod shape, straight, hyaline, smooth.

This is a frequent plant, usually on pine. It occurs more rarely on frondose wood, and we have collected it on willow. It is common in Europe and America, and recorded from Africa. There should be no trouble in telling Polyporus caesius, for it is the only white species that turns blue when touched. The dried specimens have a greyish white cast by which they may be recognized. Sowerby many years ago records that the fresh plant has an anise odor, and one of our correspondents made the same observation. We have never noted it.

SPECIMENS.—Many, Europe and United States.

ILLUSTRATIONS.—Both the good pictures Gillet and Sowerby (226) show white plants. The characteristic blue spots when touched, which are the features of this plant, should have been indicated.

Compare caeruleus, caesio-coloratus, subchioneus.

NOTE.—Greenish spots come on Polyporus semisupinus, teste Morgan, and we believe Polyporus caesiosimulans was probably based on this species. With its very minute pores it cannot be confused with Polyporus caesius.

SECTION 86. CONTEXT VERY SOFT AND COTTONY.

POLYPORUS LEUCOSPONGIA (Fig. 665).—Pileus white, sessile, dimidiate, with soft, dull surface, no distinct crust. Flesh white, unchangeable, very soft and spongy near the surface, more

firm below. Pores medium large, about 2 mm. deep, with angular, irregular mouths, white, discolored in drying. Spores globose, 6-8 mic., hyaline, smooth.

Fig. 665.
Polyporus leucospongia.

This is a remarkable species readily known by its very soft surface flesh, which is so soft that to the touch it is like a piece of cotton. It occurs on spruce in the mountains of California, and was first sent to Europe by Harkness. His specimens were distributed by Ellis 1104 and Rabenhorst 3432, hence found in most museums. They write Cooke's name after Polyporus leucospongia, though Cooke referred it to Polyporus labyrinthicus (which no one knows) and never took the trouble to change his label. Outside the Harkness collections, we have seen but two specimens, one from Mrs. Whetstone, Minnesota, which we refer here, though with some doubt, and a collection from Cuba, Underwood, which was called Polyporus altocedronensis but is the same as Polyporus leucospongia on comparison. Since above was in type Overholts found the plant abundantly in Colorado.

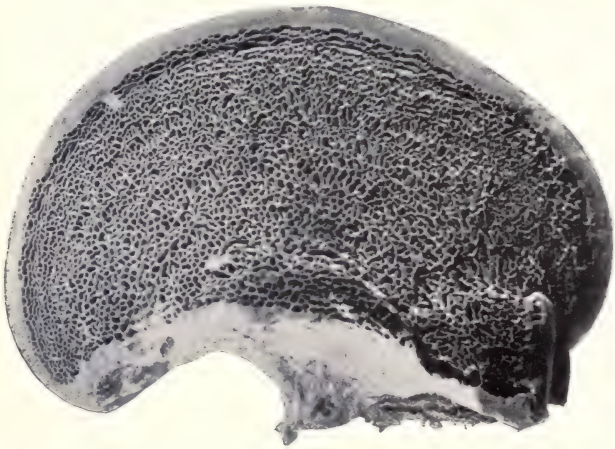
Compare altocedronensis.

SECTION 87. CONTEXT, WHEN DRY, SPONGY AND LIGHT.

A.—Pores large, sinuate.

POLYPORUS OBTUSUS (Fig. 666).—Pileus sessile, large, often six inches or more in diameter. Surface fibrillose, hirsute, rough, soft, no distinct crust. Context (when dry) pale yellowish white, soft,

light, spongy. Pores very large, irregular, 1-3 cm. long, 2-3 mm. wide, light tissue, concolorous with the flesh. Spores 8-10 mic., hyaline, smooth, with large guttae.



Fig, 666.

Polyporus obtusus.

This is a remarkable species not rare in portions of the United States. It generally grows on living black oaks, causing a heart rot that eventually kills the tree. It is said not to infect the white oaks or red oaks. This fungus is noteworthy for its soft, spongy flesh, light weight, and large pores. We have never seen it growing, but we think fresh specimens are more yellow than the dried ones.

Polyporus obtusus was most probably the plant that Schweinitz called Sistotrema spongiosum, changed by Fries to Polyporus labyrinthicus, of which no specimen exists. It is found in Schweinitz's herbarium as Polyporus unicolor, but does not agree with his description of unicolor. The first specimen to reach Europe was collected by Drummond (near New Orleans, probably), and named in ms. by Klotzsch as "Polyporus Drummondii Klotzsch," but is not the plant published under that name. Berkeley published it as Polyporus obtusus. The plant is not infrequent in the United States in sections where the black oak grows. In Europe it is not surely known, though we should here refer a specimen collected in Hungary by Kmet, which was referred to Polyporus Schulzeri, and probably is Polyporus Schulzeri according to the poor picture that Kalchbrenner gave of it. It has never been collected in western Europe. In the New York

Gardens are specimens from Jamaica (named Polyporus luridescens). We have it from Ceylon (?), and the specimen from India that Berkeley called Trametes Hobsoni should, in my opinion, be here referred.

Compare Hobsoni, Irpex, labyrinthicus, laxus, luridescens, Schulzeri, spongiosus, tomentoso-quercinus, Tyrolensis, unicolor.

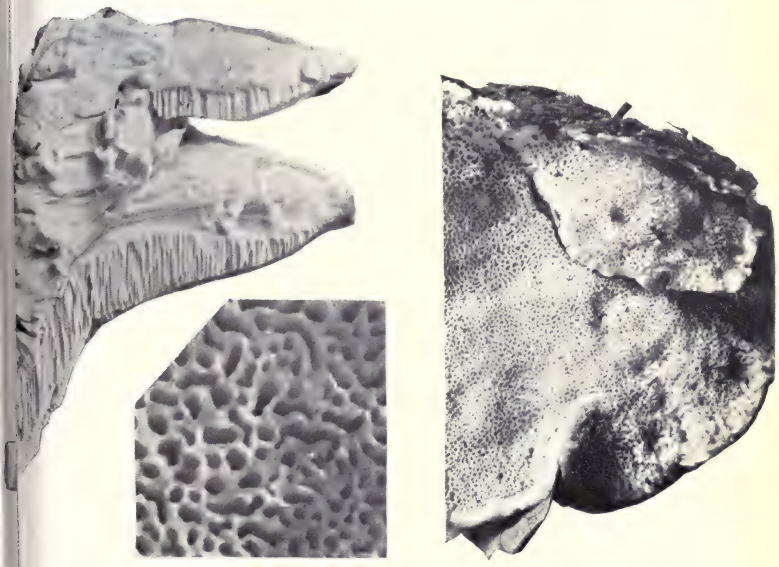


Fig. 667.
Polyporus delectans. Showing pores enlarged (X6).

POLYPORUS DELECTANS (Fig. 667).—Pileus sessile, usually long decurrent behind, and imbricate. Surface rough, anoderm, soft. Flesh white, drying light and spongy. Pores large, 1-1½ cm. long, with mouth 1-2 mm., often irregular. Spores subglobose, 7-8 mic., hyaline, each with a large gutta.

In the fall of the year, usually late, we often find around Cincinnati this large, white species growing on frondose logs. When fresh it is white, but in drying it turns yellowish. It was named by Peck from species sent by Morgan from Cincinnati. Berkeley had the plant, but he referred it as a variety of Polyporus obtusus, hence did not succeed in getting his name attached to it, which is a pity. Polyporus delectans seems to occur only in the Middle West. All the specimens in my collection or at New York are from Ohio or Indiana.

POLYPORUS BOREALIS (Fig. 668).—Pileus sessile, dimidiate, or sometimes growing more upright and reduced at base. Surface hirsute-tomentose, particularly when young; when old, more matted. Context white, tough, fibrillose, spongy when fresh, drying light weight and fissile. Pores at first round (Fig. 669), angular with thick walls, becoming, when mature, long, sinuate, daedaloid (Fig. 670). Spores elliptical-compressed globose, 5 x 6 mic., hyaline, smooth.

Fig. 668.

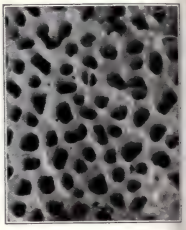


Fig. 669.

Fig. 670.

Polyporus borealis. Fig. 668, young pores (X6). Fig. 669, old pores (X6).

In Europe this plant is well named, occurring in large quantities in northern Europe, always on Abies. While a plant of common record in more southern Europe (England), we doubt if they have it in England, excepting perhaps in Scotland. In the United States we have never seen it abundant, but it occurs in northern localities, and we have one collection from Tennessee.

As one first begins to notice Polyporus borealis in Sweden, it is a round tubercule, then triquetrous and thick as it begins to develop

its pores. At length thin with acute margin, and usually four to six inches in diameter. It is the only abundant, white Polyporus one notes in Sweden.

Compare Ptychogaster, also Ptychogaster albus, Myc. Notes, Polyporus Issue, page 30.

Forms.

POLYPORUS SPATHULATUS.—The common Polyporus borealis is a thin, dimidiate plant, but it has a tendency to form behind a reduced base, or a "short lateral stipe," as Fries notes it. He named this form as above.

POLYPORUS LAPPONICUS.—This was named by Romell from a single specimen on Abies in Lapland. It is similar to Polyporus borealis, and was so taken by Romell when collected. The spores, oblong, 3-4 x 8-12, are quite different. We have seen no specimens.

B.—Pores small, round.

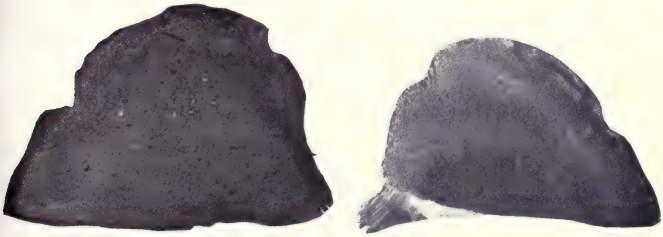


Fig. 671.

Polyporus occidentalis.

POLYPORUS OCCIDENTALIS (Fig. 671).—Pileus sessile, white, with soft, fibrillose surface. Context light weight, soft, friable near the surface, firmer below. Pores white, small, 2-3 to mm.

Quite similar to Polyporus obtusus in the color and soft, light-weight flesh, it differs markedly in having small pores. It is quite a rare plant, and but few collections are at New York Gardens. It occurs on beech. We have only one collection, from S. H. Burnham, New York.

POLYPORUS PELLES.—Pileus dimidiate or from a reduced base. Surface soft, densely hairy, dark brown. Flesh (of dried specimens) hard below, softer above, and resolved into the dense hairy surface; white (probably) when fresh, but discolored, fuliginous in specimen. Pores minute, round. Spores elliptical, 3½ x 5½, hyaline.

Based on a specimen (No. 8) from E. Jarvis, Queensland, Australia. The soft, hairy surface is comparable to the fur of some animal. The plant is evidently related to Polyporus rufescens (but

with different spores), and a better knowledge of it may transfer it to Section 33 of stipitate species. The type specimen, however, is only reduced at the base. The flesh next to the pores is hard and firm, but is softer above.

SECOND GENERAL DIVISION.

CONTEXT WHITE OR PALE. PORES COLORED. SPORES HYALINE.

We divide this division into three sections:

Thin plants, pileus less than a cm. thick.....Section 88.
Thick plants, ungulate..... " 89.
Thin plants, with gelatinous pores. (Gloeoporus in part).. " 90.

SECTION 88. THIN PLANTS, LESS THAN A CM. THICK.

POLYPORUS ADUSTUS.—Pileus thin, dimidiate, imbricate, often largely decurrent. Surface finely tomentose, isabelline. Flesh white, slightly discolored when dry, thin, 3-5 mm. Pores dark adustus or fuliginous, small, round. Spores allantoid, 1-1½ x 5.

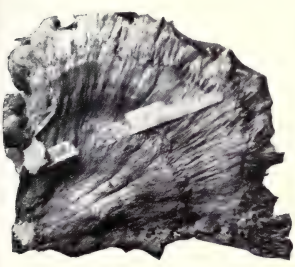
We have here a most abundant species throughout the United States and Europe, on frondose wood. Around Cincinnati it favors the beech, but it has no especial affinity to the host. The imbricate pilei often cover many feet on the side of logs or extend for many feet over the trunks of standing, dead trees. Polyporus adustus is often confused with Polyporus fumosus. In adustus the pores are dark in the growing plant. In fumosus they are white, but turn dark as the plant dries. Besides, the spores are different. Still, we often have collections of dried Polyporus fumosus which are difficult to tell from Polyporus adustus, and in the museums many specimens of Polyporus adustus are labeled as being Polyporus fumosus.

There is not much variation of Polyporus adustus as it occurs in Europe and the United States. Yellowish specimens have been called Polyporus carpineus. Sometimes Polyporus adustus develops a fragrant odor. Then it is apt to be called Polyporus fragrans, but not correctly, for Polyporus fragrans is a form of Polyporus fumosus. Polyporus adustus in its various forms is of world-wide distribution. These foreign plants have received many names, as recorded in our synonyms. The following two are all we have noted that seem to us worthy of a separate name.

ILLUSTRATIONS.—Bulliard, 501 (as pelleporus), rather dark. Sowerby, 231 (as carpineus) pores are right but color of pileus never as "fawn" as this. Gillet, good.

SPECIMENS.—Abundant from Europe and America. We have specimens also from Argentine Ceylon, Japan, India, Madagascar (?). It appears to be frequent in Japan.

Compare Burtii, carpineus, Curreyanus, digitalis, dissectus, dissitus, fusco-cinereus, Halesiae, Karstenii, Lindheimerii, MacOwani, scanicus, simulans, strumosus, subcinereus, tristis.



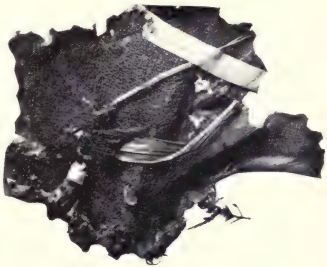


Fig. 672.

Polyporus crispus.

POLYPORUS CRISPUS (Fig. 672).—Same as Polyporus adustus excepting that it has large, sinuate pores. It is usually quite thin. Intermediate pore forms occur connecting Polyporus crispus with adustus. In its type form Polyporus crispus is infrequent in Europe.

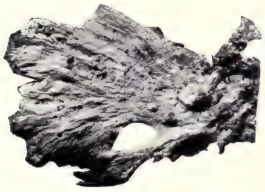
SPECIMENS.—A few from Europe, and they are not strongly distinct from Polyporus adustus.

Compare tristis.

POLYPORUS SECERNIBILIS.—This agrees with Polyporus adustus as to habits, flesh, pores, and spores, but the surface is brown, minutely pubescent, zoned with a resemblance to the surface of Polystictus zonatus. It is an Eastern form, originally known from Ceylon. The types are in quite poor condition, but we have fine specimens from the "type locality" Prof. Petch.

SPECIMENS.—Ceylon, T. Petch; Mexico, S. J. Bonansea; India, G. H. Cave; Japan (?), A. Yasuda, not typical.

Compare repandus.



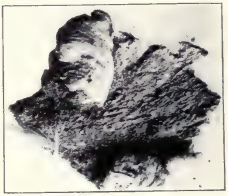


Fig. 673.

Polyporus campylus.

POLYPORUS CAMPYLUS (Fig. 673).—This, known only from the old type Tasmania, has the general aspect of being Polyporus crispus, a similar plant to the eye, but the pores are paler. It is not crispus, however, as there are abundant globose, hyaline spores, which we judge are conidial only. The type material does not give a very good idea of it, and we expect when well known it will prove to belong to the section Petaloides.

POLYPORUS ELMERI.—Pileus thin, dimidiate, with ochraceous surface, no distinct crust. Flesh very thin, 1-2 mm., white, brittle. Pores minute, round, isabelline, darker than the flesh. Spores subglobose, 3½-4 hyaline, with surface minutely but distinctly rough. This is a rare species, only known from a few collections in the Philippines. The general appearance of the pores is that of Fomes lignosus or nearer the color of Poria undata. The plant is much more closely related to Polyporus zonalis than to others of this section.

SECTION 89. THICK, UNGULATE PLANTS.

POLYPORUS AMARUS.—Pileus ungulate, often large, 10-20 cm., broad, 6-12 cm., thick. Surface pubescent when young, rimose and chalky when old. Context pale yellowish, hard and brittle when dry. Pores dark brown in dried specimens, 1-2 cm. long. Mouths round, ½-1 mm. When growing, the pores are yellow or greenish yellow, turning reddish brown in drying. In the dried specimens they are much darker in color than the context. Spores 5 x 8, elliptical, hyaline, smooth.

A western species that was named and described by Hedgcock. We have drawn largely from the description. It is supposed to be the cause of the "pin-rot" in the incense cedar of the Pacific coast. Dr. Von Schrenk described this disease and named the fungus Polyporus libocedrus, but did not describe it formally; and he advises us the types are destroyed. We therefore adopt Mr. Hedgcock's name, believing, however, it would have been better had Hedgcock adopted Von Schrenk's name. Mr. Long tells us he has noted the plant abundantly in California, but he failed to send us any specimens. All we have is a little slice of the type.

SPECIMENS.—California, Geo. S. Hedgcock, a slice of the type.

Compare libocedrus.

SECTION 90. THIN PLANTS, SOMEWHAT GELATINOUS WHEN FRESH.

This (in part) forms the "genus" Gloeoporus.

POLYPORUS DICHROUS.—Pileus thin, dimidiate, usually imbricate. Surface smooth, white, no crust. Flesh white, thin, firm. Pores small, dark purplish brown, gelatinous. Spores allantoid, 1½ x 4-5, hyaline, curved.

Polyporus dichrous is a very common species in the United States and a rare one in Europe. It grows on frondose wood, imbricate, and quite extensive. When fresh the pores are gelatinous, and can be easily stripped away from the flesh. On this account the plant was erected into a new genus called Gloeoporus, which is maintained by various writers. When dried the gelatinous nature of the pores is not so evident. While it is rare in Europe, the plants are the same as the common American plant. In American tradition the plant has passed as Polyporus (or Gloeoporus) conchoides, which is partly right but

largely wrong, for conchoides is a thin, white, tropical plant close to Polyporus dichrous.

In the northern regions of the United States and Europe Polyporus dichrous is very uniform, but it takes many color forms in the tropics, as follows:

ILLUSTRATIONS.—Sturm's flora, fasc. 16, t. 39. This seems to be the only one, and it is very good. The pores are deeper purplish than shown, but it is fair.

SPECIMENS.—Many from America, several from Europe; Japan, A. Yasuda, a very thin form; Brazil, Rev. Rick, Rev. Thiessen, exactly same color hymenium as our United States plant; South Africa, Miss A. V. Duthie.

Compare Curreyanus, Macouni, nigro-purpurascens.

POLYPORUS MADAGASCARENSIS.—This is a brown form, with thick, much more fragile flesh than the European form. We have this only from Madagascar, Henri Perrier de la Bathie.

POLYPORUS CROCEO-PALLENS is a form recently named from Java with yellow pores. There is a cotype at Kew.

POLYPORUS CONCHOIDES.—Plant when growing pure white, thin, dimidiate, imbricate. Flesh thin, white. Pores minute, white when fresh, drying flesh color, gelatinous. Spores allantoid, 1-1½ x 4-5.

Originally from India, Polyporus conchoides is widespread in the tropics. It was described from dried specimens as having flesh colored pores, and when I recently collected it in Cuba, with pure white pores, I did not recognize it until in drying the pores turned flesh color. Some one started the story that our common, temperate region plant with dark, purplish pores, Polyporus dichrous, was Polyporus conchoides, and this mistake permeates most of our American literature. While Polyporus conchoides is not rare in American tropics, I do not know it in the United States, even in Florida.

The pores are so minute that Léveillé, with his customary accuracy, discovered it to be a "new species" of Thelephora (sic). The original collection sent to Europe was from South America, and was called Boletus Thelephoroides by Hooker. It passes in Saccardo as a Polystictus, and for eighty years the type in good condition has remained unrecognized in the cover at Kew. We presume the jugglers will juggle the name Polyporus conchoides as soon as they find it out.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie; Ceylon, T. Petch; Brazil, Rev. Rick, Rev. Thiessen; Nicaragua, C. L. Smith; Cuba, C. G. Lloyd.

POLYPORUS AMORPHUS.—Pileus thin, concolorous, dimidiate, imbricate, often effused and subresupinate. Surface white, smooth, minutely silky pubescent. Flesh white, subgelatinous, drying rigid. Pores small to medium, shallow, varying in color white, reddish, or flesh color, and rarely deep yellow. Spores allantoid. 1½ x 4, cylindrical, curved.

In pine regions of Europe this is a frequent plant. It is noted for the various shades of color the pores assume. The gelatinous nature of the plant gives the pores a waxy appearance, by which the species can be recognized even when dry. In the United States it is rare, in the East. Schweinitz's record is an error, but Berkeley-Ravenel's record is correct. We have fine typical specimens from Idaho, Weir.

In olden times Link named the plant Boletus epigeus, according to his specimen, but it does not seem to have gotten into print. Fries called it Polyporus amorphus. Persoon states (truly) that it is no more amorphous than any other species, and would have changed the name to Polyporus aureolus, which, of course, Fries would not accept. He changed Persoon's names whenever it suited his fancy, but he would not stand for his own names being changed. We believe Polyporus amorphus never occurs except in connection with pine, and it often grows over pine needles.

ILLUSTRATIONS.—Gillet, very good, form with yellow pores. Sturm, fasc. 27, t. 12, best form with rosy pores (called Polyporus roseo-poris). Sowerby, 423, no doubt correct, but poor.

SPECIMENS.—Europe, a number; United States (where it is extremely rare): Idaho, James R Weir, three good collections; Michigan, C. H. Kauffman; Eastern States, F. H. Ames, Miss A. Hibbard. These four collectors (and Ravenel) are all that have ever been found in the United States. (It is not included in N. A. F.) Japan, A. Yasuda.

Compare alboaurantius, alboroseus, Armeniacus, cerebrinus, epigeus, erythroporus, investiens, Kymathodes, molluscus, roseo-maculatus, Virginii-Cuboni.

THIRD GENERAL DIVISION.

CONTEXT AND PORES COLORED. SPORES HYALINE.

This we divide into six sections. None have setae excepting the last.

Context isabelline or yellow	Section	91.
Context orange red, soft, spongy	"	92.
Context vinaceous or purple	"	93.
Context olive	"	94.
Context brown. Setae none	"	95.
Context brown. Setae present	"	96.

SECTION 91. CONTEXT ISABELLINE OR YELLOW.

POLYPORUS CROCEUS.—Pileus bright yellow when in its prime, sessile, dimidiate, sometimes large (5-15 x 10-25 x 1-3 cm.) Surface dull, concolorous, minutely velvety when young. Flesh concolorous, drying hard, and discolored. Pores concolorous, medium, small, irregular, drying hard, resinous, darker color than the context. Spores oval, 3 x 4-4½, smooth.

When in its prime, this is the most showy Polyporus that grows; nevertheless there has never been a colored plate made of it. It is rather rare in Europe, always on oak, and has a preference for growing in hollow oaks. In America it is larger and more common, often on

hornbeam around Cincinnati. It is bright, orange yellow color when in its prime, but pales out when it gets old, and when dried loses all yellow and becomes dirty, distorted, reddish brown, and a miserable affair. The pores have some resinous principle apparently, and dry agglutinate, hard, and darker than the flesh. There is a similarity between the way these pores dry and those of Polyporus fissilis. In Europe this species was named by Persoon, and although rare it has never had any confusion in Europe (excepting misdeterminations at Berlin). In America, Schweinitz, Berkeley, and Atkinson have each discovered it to be a "new species." Schweinitz called it Polyporus Pilotae, and this name has been generally used (Morgan, Long). Berkeley called it Polyporus hypococcinus, and admitted it was same as Pilotae. And, finally, Atkinson, in blissful innocence that the plant had been known to every fungus worker under several names for eighty odd years, discovered as late as 1902 that it was a "new species," Polyporus castanophilus. Murrill was the first to suggest that the American and European plants are the same. We were able to demonstrate it when we collected plants in both countries.

ILLUSTRATIONS.—Although in its prime the most showy Polyporus that grows, no colored plate has ever been made of it. Sturm, fasc. 27, plate 1, is an evident misdetermination for Polyporus rutilans; and German mycologists have perpetuated the mistake to this day.

SPECIMENS.—A number from Europe and America and exactly the same.

Compare castanophilus, endocrocinus, hypococcineus, Pilotae, Pinicanadensis.

POLYPORUS BENZOINUS.—Pileus dimidiate, imbricate, usually three to four inches in diameter. Surface dark, chocolate brown, hispid, hairy when young; when old, matted tomentose, marked with metallic, bluish zones. Flesh pale brown (clay color when dry), drying firm. Pores small, round, firm, with colored tissue, and, when fresh, white mouths, bruising brown. Spores 2 x 5, hyaline, cylindrical, curved.

This is a frequent species in Sweden on Abies stumps, in America more rare. In England it has only recently been recorded. Freshly dried specimens are fragrant, and it has been confused in one of the latest English books with Trametes odorata, with which it has nothing in common excepting the "smell." In Europe it is known by Fries' name, Polyporus benzoinus, by all law-abiding citizens. Quélet dug up an old name from Scopoli, Polyporus fuliginosus, which he alleged is the same, and Murrill follows the allegation, applying it, however, to a different plant. Hennings believed it was Polyporus cuticularis, and specimens so named are exhibited in the Museum at Berlin.

ILLUSTRATIONS.—Fries, t. 183, good, but rather represents the next; Kalchbrenner, t. 36, f. 1, good, but misnamed, Kalchbrenner having been a better artist than he was a mycologist. Rea Trans. Brit. Soc., 1905, t. 12, correctly named, but badly colored, Rea being the contrary.

SPECIMENS.—Mostly from Europe. It is rare and hard to distinguish from Polyporus fuscus in the United States.

Compare morosus, Pinisilvestris, also Fomes fuliginosus, resinosus.

POLYPORUS FUSCUS.—This is quite close to the preceding plant, and is best characterized in contrast. Polyporus benzoinus grows on Abies, has metallic, bluish bands on pileus, is strongly hispid when young, has firm, well-formed pores. Spores not found in dried specimens, 2 x 4-6. Polyporus fuscus grows on beech and frondose wood, rarely has metallic bands, is finely tomentose, has soft, collapsing pores, and spores 2 x 8-10, abundant in dried specimens. They are so similar that some hold them to be the same; and if our knowledge was based on a few herbarium specimens, they would be the same species for us. But we know them both from abundant fresh collections, and the points of difference are constant.

Polyporus fuscus grows in quantities in the United States, often covering the sides of logs. It develops late in the season; about the first of October we begin to notice it, and during the month it becomes the most abundant Polyporus in our woods. It freely exudes drops of water under proper climatic conditions. In Europe it is known principally from the writings. Every word of Fries' description was applicable. He records it as frequent, and the figure he cites, Flo. Dan. t. 1138, is very good. But, like the Dodo, it appears to be extinct in Europe now. At least we know no one who has collected it recently, and have only seen one specimen in any European museum, viz., an old collection by Blytt at the British Museum, and that is not certain.

This is the frondose analogue of Polyporus benzoinus. The legal name for it is Polyporus resinosus, but there are two serious objections to following the law. First, it is not resinous, and second, it is evidently not the plant that was so named. The plant has been known in American mythology generally as Polyporus resinosus, taken from Berkeley's traditions, and we have heretofore so called it (under protest, cfr., Myc. Notes, p. 490, Note 19). Polyporus fuscus is the name that Persoon evidently applied to the preceding plant and this combined, if he knew this, considering them one species. He referred (in error, evidently) Polyporus resinosus as a synonym on the vague record of Schrader. Fries took Persoon's synonym and changed Persoon's name on Persoon's synonym and the sacred law of priority, inaccurately and inappropriately in this case at least. We like to follow the law and custom as much as possible, but this is an instance so rank that we should prefer to be an outlaw. Polyporus resinosus, we believe, was originally that strongly resinous plant now called Fomes laccatus, and it was unknown to both Persoon and Fries, in their writings. Fries had the plant from Quélet. (Cfr. Synopsis Fomes, p. 284).

ILLUSTRATIONS.—Flora Dan., t. 1138, very good. Rostk., t. 29, poor if correct.

SPECIMENS.—Many, all from United States.

Compare resinosus, rubiginosus, stillativus.

POLYPORUS RUTILANS (Fig. 674).—Pileus sessile, applanate (4 x 5 x 1-2 cm.), unicolorous, pinkish cinnamon. Surface dull, concolorous, smooth. Flesh soft, friable when dry, concolorous. Pores small, round when young, at length large and irregular, 1-5 mm. long. Spores subglobose, 3½-4 mic., smooth.

This is a common plant in France, and is perhaps the most frequent Polyporus we found at Fontainebleau. In England, Sweden, and America it is less common. Berkeley did not record it in his first account of English species. Around Cincinnati we make a few collections every season, but it is rather rare. It is a plant that changes but little in drying. Persoon gave a good illustration of it, and I think

it should never have been confused. Fries, however, called it Polyporus nidulans, and thought that his species was thicker and had larger pores. Berkeley generally used Fries' name, and under this name the plant has been generally known in America. The plant, as

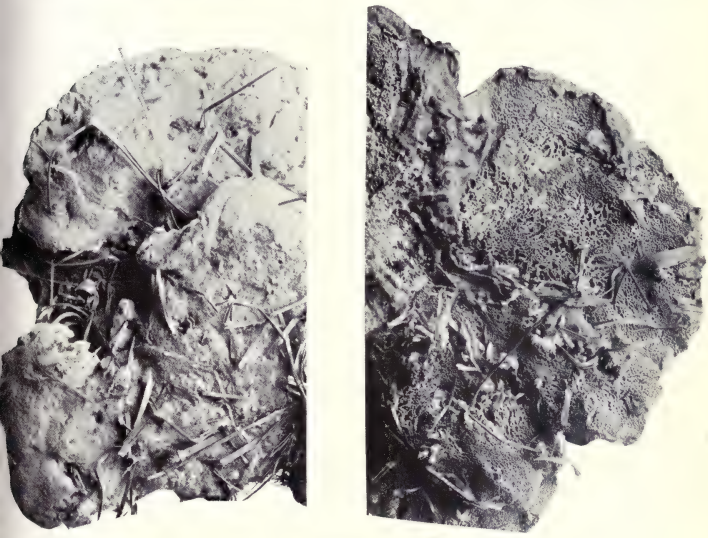


Fig. 674.
Polyporus rutilans.

we found it in Sweden (rarely) is exactly the same plant as is common in France. There is a chemical test for Polyporus rutilans. Touch it with a little alkali (potash or ammonia) and it at once turns lilac. We know no other species with this character.

ILLUSTRATIONS.—Saunders, S. & F., t. 45 (good). Persoon, Icon. & Desc., t. 6, fig. 3 (good); and if Fries had access to this figure, which is not probable, as he miscites it, there would have been no excuse for his renaming the plant Polyporus nidulans. Gillet (as nidulans) color much too pale. Bulliard, 482, not good.

SPECIMENS.—Many, Europe and United States.

Compare nidulans, niveus, pallido-cervinus, ribicola, also Fomes Novae-Angliae.

POLYPORUS CINNAMOMEUS.—Pileus applanate, a cm. thick, with a thin, smooth, reddish crust. Context thin, soft, isabelline. Pores small, round, regular (now), dark isabelline.

This, we believe, is a good species, but very rare and practically unknown in Europe. There exists a single, authentic specimen which we noted for the first time

on our last trip to Europe. Fries evidently (as he states) did not know the plant, but he misreferred here a figure of Bolton and apparently drew his description from Bolton's figure. In that sense it was probably Fomes pomaceus. and has so been referred as a synonym by Quélet and Bresadola. Polyporus cinnamomeus has nothing in common with Fomes pomaceus, but is a species of Polyporus, otherwise unknown to me. It suggests to me only Polyporus valenzuelianus, and the pileus surface is of the same reddish color. It is evidently a most rare species of Europe, and has not been found since Trog, eighty years ago.

ILLUSTRATIONS.—None. Bolton's figure, here referred by Fries with doubt. has no resemblance to it.

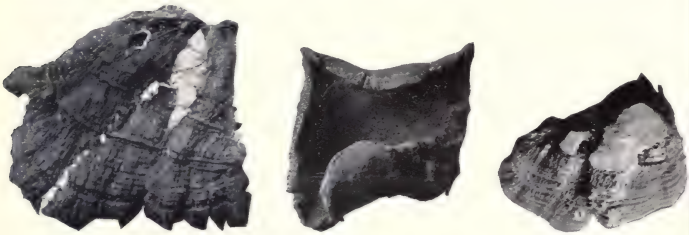


Fig. 675.

Polyporus zonalis.

POLYPORUS ZONALIS (Fig. 675).—Pileus thin (4-6 mm.), rigid, drying hard, incurved. Surface reddish brown, with narrow, concentric, raised zones. Context thin, hard, pale ochraceous. Pores minute, 3-4 mm. long; when old, brown, but my impression is that they are orange when fresh. Spores abundant, globose, 4-5 mic., hyaline, smooth.

This is a common species throughout the tropical world. It was named from Koenig's specimen from Ceylon, type at British Museum. The greater part of the abundant specimens in the museums. both from American tropics and the East, are evidently the same. though aberrant forms are found in the American tropics. Fomes lignosus, also a common species in the tropics, is very much like this in its (usual) Polyporus form. We have trouble in distinguishing them. Same general colors and pileus surface. The pores in Polyporus lignosus fade out in the older parts, but retain a uniform color in Polyporus zonalis. There are always abundant spores found in Polyporus zonalis. We have never found spores in Polyporus lignosus. We have a collection from Ceylon with more adustus pores than usual. Also collections from Brazil with pileus not so strongly zoned. Polyporus zonalis in the American tropics grades into the next.

SPECIMENS.—Surinam, J. Kuyper; Nicaragua, C. L. Smith; Jamaica, N. Y. Botanical Gardens; Brazil, Anna Brockes, Rev. F. Theissen, Rev. Rick; Java, Dr. J. W. C. Goethart. Rev. Bresadola; Philippines, E. D. Merrill; Ceylon, T. Petch; Australia, W. W. Froggatt; Hawaii, C. N. Forbes; Samoa, C. G. L.; Japan, A. Yasuda.

Compare Holtermanni, inconspicuus, Jelinekii, plumbeus, polymorphus, rufo-pictus. rugulosus, also Fomes microporus.

POLYPORUS RIGIDUS.—This is close to Polyporus zonalis, same general nature and surface. The cotype, a single specimen from Java, is at Paris. It differs from zonalis in having pale pores, with only slightly ochraceous tissue when recent, and never dark as they are in Polyporus zonalis. Spores 4-6 mic., are a shade larger, and the surface is not so strongly zoned. We collected Polyporus rigidus recently in Florida, and Mr. Overholts recently sent, from Missouri, a form largely resupinate with a narrow, reflexed pileus.

SPECIMENS.—Florida, C. G. Lloyd; Missouri, L. O. Overholts; Java, J. P. Mousset, Dr. van Leeuwen; Japan, A. Yasuda.

Compare connexus, rugulosus, surinamensis.

Polyporus Yoshinagai (cfr. Letter 54, Note 213) is a closely related plant from Japan, reduced to substipitate base, and classed in Section 15 Petaloides.

POLYPORUS CONCRESCENS.—This is scantily known from South America. It is close to Polyporus zonalis, but pores and surface are reddish. Spores not found. The types (although named by Montagne) we found only at Kew and Upsala. Polyporus microstomus and Polyporus evolutus are both the same, we think, and all three are known only from scanty types.

Compare evolutus, microstomus, nitidulus, stuposus.

POLYPORUS RECURVATUS.—Pileus thin, rigid, dimidiate, (3 x 5½ cm). Surface smooth, zonate, tawny olive. Context thin, pinkish buff. Pores minute, round, concolorous. Spores not recorded, not found by me.

A rare species of Brazil published by Rev. Thiessen in 1911. I know it only from cotype material.

POLYPORUS FARINOSUS.—Pileus rigid, thin, with acute edge. Surface reddish brown, rugulose with innate scales. Context isabelline, firm, hard. Pores minute, tissue and mouths concolorous with context. Spores not found.

I know this only from a specimen named in mss. by Rev. Rick, Brazil. It has an endorsement "odor farinae." The name farinosus is a duplicate, having been used by Brefeld, but as no one else knows to what he refers, the name will not be overworked if used the second time.

POLYPORUS SEMILACCATUS.—Pileus sessile, applanate, thin (4-8 mm.), rigid. Surface smooth, brown, variegated with darker, imperfect zones or blotches. Context firm, but punky, dark isabelline (clay color). Pores minute (1-1½ mm. long), darker than the context, rigid. Spores not found.

This is a frequent species in the East, absent from American tropics. It is hardly well named, although the darker blotches have a laccate effect. It was named by Berkeley as a form of zonalis, afterward put in "Fomes" by Cooke. Bresadola at first adopted this name, and so endorsed the "type" of Polyporus rhodophaeus at Leiden (cfr. Letter 36). Afterward he took Léveillé's name. It is abundant in Philippines, and quantities have been distributed under Berkeley's name.

SPECIMENS.—Ceylon, T. Petch; Japan, A. Yasuda, M. T. Yoshinaga; Philippines, E. D. Merrill (seven collections).

Compare cinereo-fuscus, rhodophaeus.

POLYPORUS ANEBUS.—Pileus thin, 5-8 mm., rigid, sessile, imbricate. Surface hard, smooth, brownish yellow, no distinct crust. Flesh pale yellow (cinnamon-buff), firm, dry, fissile. Pores minute, 2-3 mm. long, slightly darker than the flesh. Hyphae pale yellow. Setae, none. Spores subglobose, 3-4 mic., hyaline, smooth.

This is a frequent plant in the East and Africa, but does not occur in the American tropics. The pale yellow flesh becomes darker in the old museum specimens. The following three are forms of this plant, all similar as to context, pores, etc., but differ a little as to surface.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie; Japan, J. Umemura; Philippines, E. D. Merrill.

Compare guadalupensis, Marianus, serpens, subpruinatus.

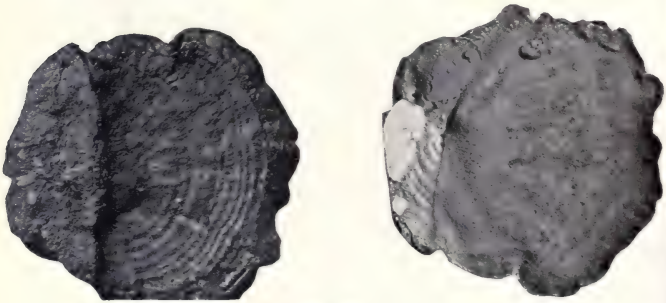


Fig. 676.
Polyporus bicolor.

POLYPORUS BICOLOR (Fig. 676).—This is the same as anebus except that the pileus develops a reddish stain; and in some collections the surface is entirely dark reddish. Some collections are partly stained and partly not. We think it is only a form of Polyporus anebus, or perhaps a condition.

Compare oblinitus, sanguinarius, subpictilis, subrubidus, vulneratus.

POLYPORUS SANGUINARIUS.—In the original sense this is a synonym for bicolor, but we use it for convenience for a color form when the pileus is entirely and distinctly and uniformly reddish in color. It is rare in the Philippines, and from there only as far as we know. The surface color is not a stain as it is in bicolor, but the natural color. The context and other features are same as in anebus, bicolor, and pruinatus.

SPECIMENS.—Philippines, E. D. Merrill, sent labeled "Polystictus sanguineus, Linn." as labels are liable to be confused.

POLYPORUS PRUINATUS (Fig. 676).—Same as Polyporus anebus excepting the surface is not smooth, but rugulose. We think it is not well designated as pruinose. We have never noticed this rough form to have the red stain that marks the preceding plant. The original collection was from Mauritius, and all my specimens are of African origin.

SPECIMENS.—South Africa, W. T. Saxton; Madagascar, Henri Perrier de la Bathie (five collections). Some of the latter are typical, some much thinner than the type.

POLYPORUS RUGOSO-SPORUS.—Pileus sessile, imbricate, thin, rigid. Surface hard, slightly rough, light brown, with deeper brown stains. Flesh light yellowish brown, firm, dry, hard. Pores small, 5-6 mm. long, darker brown than the context. Spores cylindrical, 4 x 12 mic., straight, hyaline, distinctly rough.

This is a single collection from Congo Belge, collected by Edouard Luja. In its macroscopic characters it closely approaches Polyporus anebus. The spores are different and unusual.

Fig. 676.
Polyporus pruinatus.

Fig. 677.
Polyporus Zebra.

POLYPORUS ZEBRA (Fig. 677).—Pileus dimidiate, applanate (5 x 7 x 1-1½ cm.) Surface smooth, greyish brown, strongly marked with narrow, concentric, raised zones. Flesh thin, 3-4 mic., isabelline, with a faintly olivaceous tint, hard, firm. Pores minute, round, 8-10 mm. long, with concolorous tissue. Spores not found, doubtless hyaline.

We collected this plant in Samoa ten years ago. It has been referred for us to Polyporus lignosus, Polyporus supinus, and Polyporus hemileucus, three different species, in our opinion, and it is neither. While the stripes of the pileus are not as different in color as those of a zebra, they are as prominent, and conspicuous.

SPECIMENS.—Only the types, Samoa.

SECTION 92. CONTEXT ORANGE-RED. SOFT, SPONGY.

POLYPORUS ALBO-LUTEUS (Fig. 678).—Pileus light weight, soft, spongy, triquetrous, usually largely resupinate. Surface orange, dull, no crust. Flesh orange, spongy, light, fragile. Pores very large, 2-4 mm. 2-3 cm. long, with angular, irregular edges, sometimes prolonged into teeth. Hymenium white (?) at least in dried specimens. Spores hyaline, 4 x 10, cylindrical, straight.

Fig. 678.
Polyporus alboluteus.

This plant grows on coniferous trunks, and has been abundantly collected in the Rocky Mountain region. But one collection is known east of the Mississippi, viz., Peck, in the Adirondacks (cfr. Myc. Notes, p. 379). Ellis saw it first and called it Fomes (sic) alboluteus (sic). It is neither a Fomes, white nor yellow. As the name "aurantiacus" is preoccupied, orange colored plants have serious trouble in getting appropriate names, and very few of them succeed (cfr. Fomes albomarginatus (sic), Letter No. 36). As Polyporus "alboluteus" (sic) is a most remarkable, brilliant plant, it is a pity it was not given a suitable name.

SPECIMENS.—Colorado, C. H. Demetrio, E. Bethel, E. Bartholomew, L. O. Overholts; Montana, James R. Weir; Utah, A. O. Garrett. Since this has been in type, we have received a specimen from Dr. C. H. Kauffman, collected in Michigan.

POLYPORUS AURANTIACUS.—Pileus orange with rough, fibrillose surface, no crust. Context bright orange, soft, spongy, thin. Pores medium, soft, irregular, with unequal mouths, disposed to split. Color of tissue, pale orange. Spores hyaline, 3 x 5, smooth.

This is a rather rare plant in the northern United States, usually on hemlock wood. We have collections, however, on birch and maple. It is well named from its bright, orange color. It occurs in Finland, but is apparently very rare in Europe, for all the specimens in the museums are Karsten's exsiccatae, No. 311, under the name Trametes fibrillosus. This is a prior name, but there is something crooked in its history. Karsten described the plant in 1859 (not 1882, as misstated) as having context "fulvus," and admitted (1876) that it was the same as Polyporus vulpinus, a brown species. He distributed (Exsic. 311) an orange plant under this name, but whether he substituted another species or whether he described a bright, orange plant as being "dark ferruginous, fulvus," we do not know; but in neither case has his work much claim.

It occurs also in Japan. A collection from Ikeno was misreferred by Hennings to Polyporus Shiraianus. This is the only Japanese collection known.

SPECIMENS.—We have collections from Massachusetts, Idaho, Vermont, Newfoundland, Michigan, Canada, and Washington.

Compare crocicolor, fibrillosus.

SECTION 93. CONTEXT VINACEOUS OR PURPLE.

POLYPORUS DURUS.—Pileus sessile, thin (4 x 6 x 1 cm.), drying hard and rigid, and usually incurved. Color of dried specimens very dark, almost black with purplish tinge. Surface smooth, dull, no distinct crust. Context hard, rigid, 2-4 mm., dark brown with faint purplish tinge. Pores minute, hard, 3-5 mm. long, with dark, atropurpureus mouths and tissue. Hymenial cells hyaline. Spores globose, hyaline, 3 mic.

This is not an unusual species in the East, but does not occur in American tropics. We have seen it from Africa, Java, Philippines, Australia, Ceylon. We made one abundant collection in Samoa. The color of the dried plant, dull, violet black of Ridgway, would ordinarily be called atropurpureus. We do not remember the color of the fresh plant, but our impression is that it was more brown. We do remember that we associated it with Polyporus gilvus, which we would not have done had the color been that of the dried specimens now. Junghuhn named it from Java. Berkeley called it Polyporus cartilagineus (a senseless name) and also Polyporus Testudo.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie; Samoa, C. G. L.; Philippines, E. D. Merrill; Ceylon, T. Petch.

Compare cartilagineus, Testudo, also Fomes melanoporoides, and Fomes ponderosus.

POLYPORUS VINOSUS (Fig. 679).—Pileus thin, usually sessile, dimidiate, dark vinaceous color (dark, livid purple). Surface smooth, concolorous. Context thin, brittle, hard, more brown than the surface. Pores minute, dark, concolorous with the surface. Spores (B) allantoid, 1½ x 4-4½, hyaline.

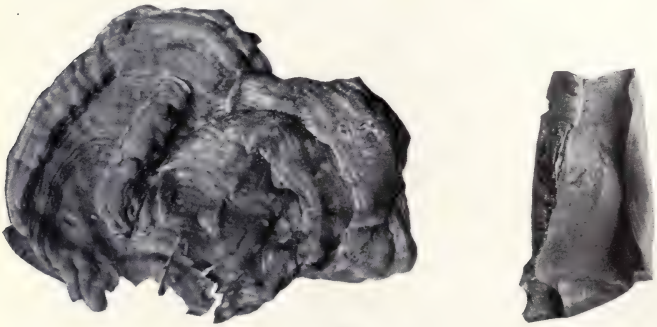


Fig. 679.
Polyporus vinosus.

This is a frequent species, and widespread in the tropics. We have noted specimens from Cuba, British Honduras, New Guinea, Malay, Java, the Philippines. From the United States, we made one collection in Florida, and at New York Gardens there is one from Harper, Georgia. It has always a thin pileus, usually curling in drying. Generally it is sessile with a broad attachment, but at Kew is a collection from West Africa that is petaloid and has a short, lateral stipe.

SPECIMENS.—Java, J. P. Mousset; Ceylon, T. Petch; Congo Belge, Edouard Luja; Madagascar, Henri Perrier de la Bathie; Philippines, E. D. Merrill; Japan, A. Yasuda; Florida, C. G. L. The specimen from Congo Belge is much thicker, larger, and has paler context than other collections.

Compare badius, Mollerianus, tristis.

POLYPORUS MOLLERIANUS (cfr. Stip. Pol., p. 147) is a petaloid form of Polyporus vinosus, agreeing with the sessile form exactly as to color, context, pores, etc., but spathulate and stipitate. There is a collection at Kew. It is only known from Africa.

TRAMETES VIOLACEUS.—Pileus thin, applanate, rigid, sessile, often decurrent behind. Surface dull, smooth, no distinct crust, pale brown, soft to the touch, minutely velvety. Context firm, hard, slightly punky, pale violaceous color (dull Indian purple). Pores minute, rigid, hard, dark, purple tissue, 1-1½ mm. long. Spores not found, doubtless hyaline.

This is based on a collection from A. J. T. Janse, Natal, Africa. We call it Trametes, where we think it should be classed, but mention it in the section of Polyporus on account of its general resemblance to the Polyporus species included. It closely resembles Polyporus durus, but is of a lighter shade of color, and of a different texture.

SECTION 94. CONTEXT OLIVE.

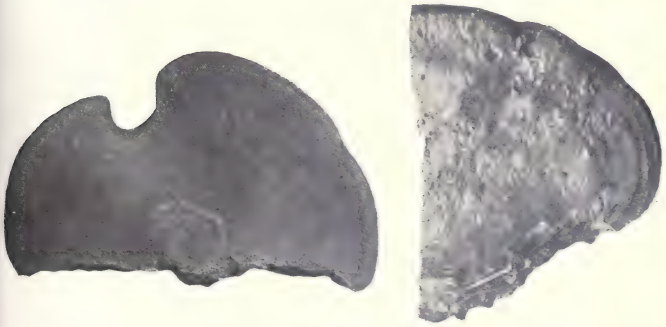


Fig. 680.
Polyporus supinus.

POLYPORUS SUPINUS (Fig. 680).—Pileus dimidiate, imbricate, often resupinate behind, usually with a thin margin. Surface, when fresh, white, dull; when young, minutely pubescent, soft to the touch; when old often spotted with red spots behind. Context dark olive (Dresden brown), hard, firm. Pores minute, 2-4 mm. long, with isabelline tissue and adustus mouths. Spores 4 x 8 mic., oblong, hyaline, smooth, with granular contents.

A frequent southern species. It occurs in southern United States, West Indies, and South America. It does not occur in the East. In Florida it was the most common Polyporus we found, and we gathered it in abundance, usually on oak. When fresh it is usually white, sometimes with reddish spots behind; and rarely the surface is entirely reddish brown, when it becomes Polyporus Valenzuelianus. We also found it entirely resupinate over a large extent, with no sign of a pileus. There is no trouble in recognizing the fresh species, from the peculiar dark olive (as most people would call it) context. In the old herbarium specimens this feature is masked; not only the surface of the pileus becomes dark, but the context loses its peculiar olive tint, and the entire plant becomes somewhat concolorous. It is very hard to recognize the old, historical material in the museums of Europe. The next species is in reality the same as this, but it is much rarer and as it grows is quite distinct. The usual plant is white, with sometimes individuals that are red spotted behind, but the collection that we made of the next form had the pileus entirely reddish, even the young specimens. We have been puzzling for a name for this common plant for years. The tradition in American mycology was that it was hemileucus, and so

it is, in part only; and an immaterial part, it seems to me, as the types described under this name are evidently Trametes cubensis. The type of Polyporus supinus is in the British Museum. It is so old and changed that we were never sure about it, although we examined it a number of times. At one time we called this species Polyporus subolivaceus, doubting it being supinus. Berkeley usually referred it to Polyporus plebius var. cubensis, and Thiessen lists it as Polyporus plebius. It has no relation to this species.

A careful reading of Fries' Nov. Symb. leaves no doubt in our mind now as to the plant that Fries had, for we have puzzled long, as Fries evidently puzzled, over the conflicting colors that collections show. Cooke discovered that the plant was a Fomes, and Morgan determined Fomes pomaceus as being Fomes supinus (sic). Murrill improved on Cooke's idea by calling it "Fomitella." Although faint indications of pore strata are sometimes seen, we are satisfied it is not a Fomes.

SPECIMENS.—Brazil, Anna Brockes, Rev. Rick (four collections), Rev. F. Thiessen, Gustave Peckolt. It is very common in Brazil, also abundant in Florida. We have many specimens from Florida.

Compare cubensis (var.), guadalupensis, sordidissimus, also Fomes rudis, subfulvus.

POLYPORUS VALENZUELIANUS.—This is the same as Polyporus supinus as to peculiar, olive context and all characters, excepting that it has a reddish brown surface, not white. That it is other than a marked color form we do not believe, but it is biologically distinct, for we noted when growing that they did not intergrade much.

It is much rarer in Florida than the type form. Montagne called it Polyporus valenzuelianus, which Berkeley referred to Polyporus supinus; and Fries suggests that Polyporus supinus was "discolored" specimens. We use the specific name as understood by Berkeley, Fries, and Montagne as to Montagne's original determination and the specimens he sent to Berkeley and Fries. But the specimen of Polyporus valenzuelianus listed by Montagne from Weddel, Brazil, is a different plant, with colored spores. The type in Montagne's herbarium from Cuba is not strongly spotted, but the specimens he sent Berkeley and Fries are, and we take it in this sense.

Compare Fomes sordidus.

POLYPORUS SUBOLIVACEUS.—This has the same context color and is quite close to Polyporus supinus, and the old herbarium specimens can hardly be told apart. Fresh specimens, however, appear quite different. Polyporus subolivaceus is unicolorous, with a uniform pileus, surface, and context color, while in Polyporus supinus there is a strong contrast between the context and surface color. We have received from Brazil a specimen agreeing exactly with Berkeley's description and, no doubt, with his specimen when it was fresh. This species was named from Cuba, but must be quite rare there, as we noted no specimen in the abundant West Indies specimens at New York. Our note on Polyporus subolivaceus, Letter 39, Note 26, and many of our previous determinations, we believe to be in error now

SPECIMENS.—But one collection, from Rev. J. Rick, Brazil.

TRAMETES PROTEA.—Pileus thin, ½-1 cm., applanate, sessile, imbricate. Surface smooth, subolivaceus. Context dark olive (Dresden brown of Ridgway), hard, punky. Pores small, paler tissue than the context, decurrent behind. Spores not found, white without doubt.

It is a question whether this is a Trametes or a Polyporus. Its relations are surely with the preceding plants. In fact, it is so close to Polyporus subolivaceus that the more punky context and larger pores are the only difference.

SPECIMENS.—South Africa, I. B. Pole Evans; Deutsch Ost Africa, H. L. Hammerstein; Samoa, C. G. Lloyd.

SECTION 95. CONTEXT BROWN. SETAE NONE.

POLYPORUS GOETHARTII.—Pileus dimidiate, concolorous, large specimens 15 x 9 x 2 cm. Surface brown, glabrous, marked with concentric, raised zones. Context dark brown (antique brown), hard. Pores minute, 4-6 mm. long, concolorous. Setae, none. Spores unknown, doubtless white.

At Leiden only this species is found, having been recently named from Java specimens. It is marked with raised zones, which are rare in Polyporus and common in Fomes. What causes these in the plant, we do not know, but in Fomes these zones are formed by the annual layers overgrowing and overlapping. As Polyporus Goethartii is only known from one collection, this character may be unusual in this specimen.

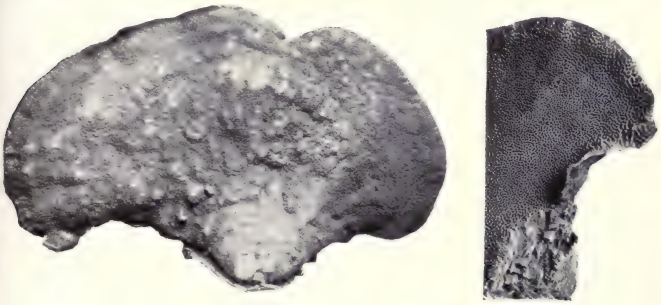


Fig. 681.
Polyporus melleofulvus.

POLYPORUS MELLEOFULVUS (Fig. 681).—Pileus dimidiate, pale brown (clay color). Surface subtomentose, soft, rough, concolous, no distinct crust. Context dry, hard. Pores medium, 3 to mm., round or irregular, with thin walls. Spores (not found) teste Romell, 2-3 x 5-7, hyaline.

This is known only from type collections. There is a cotype at Berlin. Romell put it in the "genus" Chaetoporus, which he abandoned in recent papers, but the plant has no "chaete." There are projecting hyphae which are sometimes encrusted, but nothing suggesting setae.

POLYPORUS SUBSTUPPEUS.—Pileus thin, applanate, with brown, rough surface. Context thin, soft, 3 mm. (now) brown. Pores small, round, 2-3 mm. long, dark brown (now), almost black. Setae, none. Spores globose, hyaline, 4 mic. Known only from types at Kew from Brazil, which are none too good. The Australian determinations are evidently different. We are not sure but that Polyporus sub-

stuppeus is more closely allied to Polyporus fumosus than to this section. The dark color of context may be only a color change, in which event it would go with fumosus.

POLYPORUS SUBRADIATUS.—Pileus unicolorous, sessile, rigid (3 x 4 x ½ cm.), with thin margin. Surface velvety, becoming glabrous, rugulose, no distinct crust. Flesh hard, firm, yellowish brown (antique brown). Pores minute, concolorous. Setae, none. Spores hyaline, 3 x 5-6, smooth.

We have two collections of this from Professor A. Yasuda (No. 49 and 196). To the eye it is similar to Polyporus radiatus, same general size, color, texture, but is quite glabrous. It differs by absence of setae and narrower spores.

POLYPORUS PSEUDOFRUTICUM.—Pileus dimidiate, ungulate. Context dual, the old hard and ligneous, the young soft and spongy. Surface soft. Color of old context cinnamon brown, of the new growth, yellow ocher. Setae, none. Spores 2½ x 3½, hyaline, smooth.

The old context is harder, but the young is of the same spongy nature as Polyporus fruticum. Were it not for the hyaline spores, it would be referred to fruticum. This is probably a better Fomes, and so is Polyporus fruticum at times. Notwithstanding the discrepancies of spore colors, I think it is better classed as a form of Polyporus fruticum. Specimen from Rev. C. Torrend, Bahia, Brazil.

SECTION 96. CONTEXT BROWN. SETAE PRESENT.

POLYPORUS GILVUS.—Pileus sessile, applanate, thin, ½-1½ cm., often imbricate. Surface brown, even, usually slightly rugulose. Context hard, firm, of the growing plant often bright gilvus (yellow ocher), varying to brown (cinnamon brown) when old. Ordinarily the context is more brown than yellow. Pores are small, round, 3-10 mm. long, with brown tissue and mouth. Setae abundant, slender, sharp, projecting 12-16 mic. Spores hyaline, 3½ x 4-5, smooth.

Polyporus gilvus is a most abundant plant in the United States, where it was named at an early date by Schweinitz. It grows on all kinds of frondose wood, but has a special liking for beech. Usually the old beech logs are densely covered with it. It would seem, from the abundant specimens that have reached Europe, that it is equally common in the West Indies, South America, Pacific Islands, Australia, East Indies, Japan, Philippines, India, and seems particularly common in Africa. It is strangely rare in Europe, and we have never seen but two European collections. One we have from Rev. L. Navas, Spain, the other, collected by Quélet, is in Fries' herbarium. The occurrence of the plant in England is based on an old tradition, not authentic at the start, and not at all probable.

In the United States, mycologists have always correctly known the plant. Not one of them ever discovered that it was a "new species." That, however, was reserved for Cooke, who, we believe, was the only one to discover Polyporus gilvus to be a new species in its native haunts. Ellis got mixed on one of its forms. It has not been so fortunate elsewhere, however. From the tropics and foreign countries Polyporus gilvus, and its forms, has been named about twenty times, and few new species hunters of any prominence have failed to find it. It was an especial favorite with Berkeley and Léveillé, each having discovered and named it five different times. Cooke impartially distributed those "species" through Fomes, Polyporus, Polystictus,

and Trametes, and there are few sections in Saccardo that are not enriched by one or more of them.

ILLUSTRATIONS.—No colored figure published. Sowerby, t. 195, here referred, is more probably Fomes conchatus.

SPECIMENS.—United States and Canada, over a hundred collections. We have also the following from foreign countries: Spain, Rev. L. Navas (1); Samoa (2); Ceylon (4); Mexico (1); Japan (2); Mauritius (3); Madagascar (4); Congo Belge (2); South Africa (6); India (2); Australia (1); Argentine (1); Brazil (9).

Compare Balansae, breviporus, caesiellus, endozonus, fucatus, holosclerus, homalopilus, inamoenus, Lawrencii, omalopilus, pertusa, purpureofuscus, rubiginosus, silaceus, subgilvus, sublilacinus, also Fomes bambusinus.

Forms.

Polyporus gilvus is so common and so constant in the United States that we hardly notice any variations in it. It changes some in color with age, but no one would hardly venture a variety, much less a species, on the slight difference. In the tropics it does depart into some pronounced forms, but most of the foreign collections could not be told on comparison from the "type" form. All the "forms" have the same "structure" spores, setae, context color, etc., but differ slightly in external features. The following nine species are in reality but forms of Polyporus gilvus. The last four forms are thin and could be referred to Polystictus.

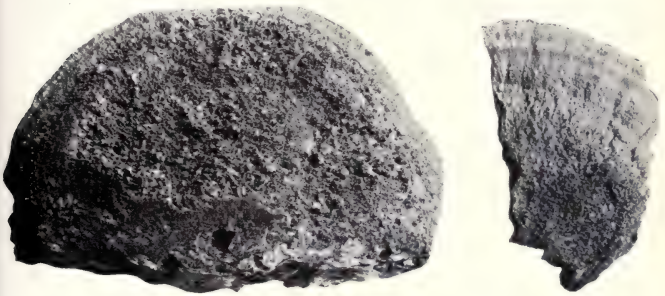


Fig. 682.

Polyporus scruposus.

POLYPORUS SCRUPOSUS (Fig. 682).—Perfectly smooth forms of Polyporus gilvus rarely occur, but the form that is called Polyporus scruposus is excessively rough, with little tubercules and granules. It was named from the United States, but these rough forms are more common and strongly marked in Africa than in the States. As it grades into the type form in all degrees, it is difficult to maintain even as a form. Fries named it, but the only type found is at Kew.

SPECIMENS.—South Africa, A. J. T. Janse (typically "scrupose"), Dr. O. Pazschke; India, G. H. Cave; West Australia, Dr. F. Stoward (strongly "scrupose"); New Caledonia, Museum Paris.

Compare crocatus, isidioides, trachodes.

POLYPORUS CARNEO-FULVUS.—The surface color of Polyporus gilvus is usually brown. In warm countries a form occurs with a reddish brown surface, named as above. It hardly merits a distinct name.

SPECIMENS.—Samoa, abundant. It was the usual form in Samoa.

Compare cupreus.

POLYPORUS INAMOENUS.—This is an indurated subfomes form of Polyporus gilvus. Sometimes it shows distinct pore layers. Polyporus gilvus takes this form more commonly in warm countries, but we have specimens from California and Dakota.

SPECIMENS.—California, L. C. C. Krieger; South Dakota, Dr. Brenckle; Uruguay, Dr. F. Felippone; Australia, E. Jarvis; New Caledonia, Museum Paris; Mauritius, P. Koenig; India, H. Val. Ryan.

Fig. 683.
Polyporus Hookerii.

POLYPORUS HOOKERII (Fig. 683).—Hooker made a collection in India which is an extreme form of Polyporus scruposus, to which Berkeley referred it as a "var." The pileus, instead of being simply tubercular, rough as in the American and African forms, is strongly fibrillose-strigose (Fig. 683). If standing alone, it would be a strong species, but intermediate collections connect it with the ordinary form of Polyporus scruposus. There is also a specimen of this plant at Kew from Australia, and we have it from Mexico.

SPECIMEN.—Mexico, Dr. S. J. Bonansea.

Compare stabulorum.

POLYPORUS SPURCUS.—Pileus thin, applanate, rigid, with a thin, rugulose, glaucous crust, distinct from the context. Context cinnamon brown, hard. Pores minute, with darker mouths, concolorous as to tissue with the context. Setae abundant, slender. Spores hyaline, small.

Polyporus spurcus is known only from the type at Paris from Guadaloupe. With the same context color, setae, and spores as Polyporus gilvus, it differs in having a distinct, glaucous crust. It surely is not Polyporus licnoides as recently referred, nor is it the same as Polyporus callimorphus as recently referred, which is licnoides. There is a possibility that when Polyporus spurcus is better known it will be found to be a Fomes.

POLYPORUS ILLICICOLA.—Named from Japan, is a thin, soft form of Polyporus gilvus, which when young is a bright, yellow color that it loses with age. It was named and misdescribed by Hennings as having spores 8-10 x 13-16. They are 3 x 3½. We have also the same form from Japan.

SPECIMENS.—Japan, Dr. A. Yasuda.

POLYPORUS MARCUCCIANUS.—Pileus applanate, with soft, brown surface. Context dry, soft, light, floccose. Pores small, round. Setae slender, numerous. Spores globose, hyaline, 4-4½ mic.

Marcucci distributed this (No. 70) years ago as "Polyporus fulvus Scop.", it being one of six different plants that have been referred to this name. It came from Southern Italy or one of the Mediterranean islands, and is the only collection known. It is close to Polyporus gilvus, has same context color, pores, setae, and spores, but the texture is light, and floccose, and the plant is flexible, not hard and brittle and rigid like Polyporus gilvus.

Plants of the gilvus alliance are strangely rare in Europe, and this is probably a modification of the African flora where Polyporus gilvus is common.

Fig. 684.

Polyporus licnoides.

POLYPORUS LICNOIDES (Fig. 684).—This is the most pronounced, tropical form. It is thin (type 2 mm.), more flaccid, and tends toward Polystictus. In the most highly specialized "type" form there are smooth, reddish zones on the pileus, but they are present and absent on the same collection. Polyporus licnoides in its "type" forms is more common in tropical America, but specimens so referred are collected in the East.

SPECIMENS.—Brazil, Rev. Rick, Rev. F. Theissen, Gustavo Peckolt; Florida, C. G. Lloyd; Ceylon, T. Petch; India, G. H. Cave; Madagascar, Henri Perrier de la Bathie; Central America, Chas. L. Smith; Congo Belge, Hyac Vanderyst.

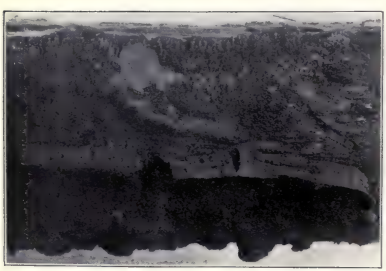
Compare Balansae, callimorphus, connexus, Ramosii, subtropicalis, also Fomes bambusinus.

POLYPORUS AURICULIFORMIS.—This is a rare form of Polyporus licnoides, with minutely pubescent or velutinate surface. It was originally from Java, and is compiled in Saccardo as "Poria." The single "type" at Leiden is of doubtful authenticity, but it surely is not "resupinate." We have a specimen from Rev. H. Vanderyst, Congo Belge.

POLYPORUS GILVOIDES (Fig. 685).—Pileus very thin, with floccose, pubescent surface. Substance soft, a Polystictus excepting as to its affinities. Color, context, pores, setae, spores as in Polyporus gilvus. This is a Brazilian form, so named by Hennings, and he gave it a good name, which is the reason we adopt it. Patouillard named the same thing, a year or two earlier, Polyporus pseudoradiatus, from specimens that were old. We see no occasion to call it "false radiatus," for it has no resemblance and precious little analogy to Polyporus radiatus. Recently an "asetulose form" has been announced from the Philippines. We have our doubts of the occurrence of "asetulose forms" of any of the Polyporus gilvus group.

Compare pseudoradiatus.

Fig. 685.
Polyporus gilvoides.



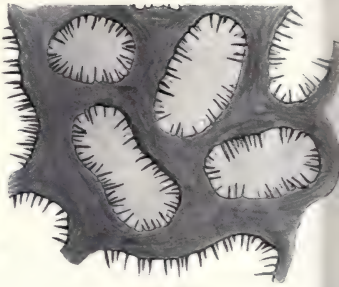


Fig 686. **Fig. 687.**
Polyporus setosus. Fig. 687, pores enlarged to show the abundant setae.

POLYPORUS SETOSUS (Fig. 686).—Pileus thin, reflexed. The plant is largely (often entirely) resupinate, or with imperfectly developed pilei. Context color brown (cinnamon). Pores small, round, with thin wall. Setae (Fig. 687) excessively abundant, slender, projecting 20-30 mic. Spores not found.

Mr. Weir finds this plant on Larix in Idaho. It is most excellently named, for such abundant setae are found on no other species. Several collections that Mr. Weir sent us are entirely resupinate. In context, color, and setae the plant is close to Polyporus gilvus.

TRAMETES FARCTA.—Pileus thin, cinnamon brown (4 x 6 x 1 cm.), with sulcate, soft surface. Context concolorous, thin, but represented by the old stuffed pores very light weight. Pores large, sinuate, ½-1 mm., almost reaching the crust; but the old pores are filled with brown hyphae, so that they appear as context. Setae slender, sharp, very numerous. Spores not found, no doubt hyaline.

Rick distributed this (No. 108) as "Fomes cereus Berk.", which is some error, apparently, for no such species was published as far as we can find. Surely it is not Poria cerea from India, and there is nothing "waxy" about it, but just the contrary, or we would retain the misname. Technically it is a Fomes, but on account of its light weight, nonligneous tissue, and general nature we should class it as Trametes. Its affinities are with Polyporus gilvus, and it is very close to Polyporus setosus.

POLYPORUS BAMBUSINUS.—Pileus general size, shape, and color as Polyporus gilvus. As to texture and surface, closer to Polyporus licnoides. Setae same. Spores hyaline, subglobose, 4-5 mic. The plant bears also conidial spores of a different type, colored, smooth, and measuring 6-8 x 8-12 mic. Abundant specimens are known in Patouillard's herbarium from China, where it occurs on the bamboo.

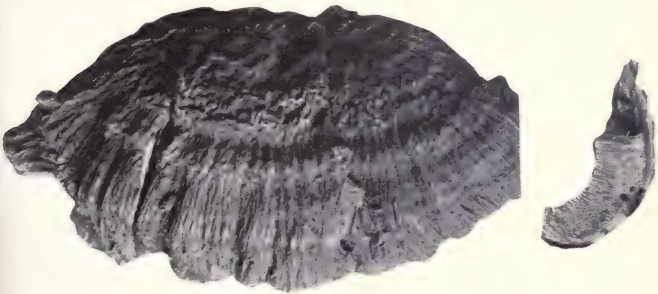


Fig. 688.
Polyporus radiatus.

POLYPORUS RADIATUS (Fig. 688).—Pileus dimidiate, sessile, triquetrous, with thin margin. Surface minutely velutinate, at length strongly rugulose, radiate. Flesh hard, dry, yellowish brown. Pores concolorous, small, about ½ cm. long, with mouths that glisten silvery when turned to the light. Setae rare, short, thick. Spores hyaline, 4-5 x 5-6.

This is a frequent plant in the United States and Europe, usually on alder. It is easily confused with Polyporus cuticularis, having about the same general shape and color, but easily distinguished by the spores. There is an erroneous tradition extant in regard to the color of its spores. Patouillard and Murrill each put it in a "new genus" based on "colored" spores. We never had a spore print, but abundant

hyaline spores are shown by the microscope. Cooke places it in Polystictus, and it is so found in most of our text books. It is out of place in Polystictus.

Persoon named it Polyporus alneus, and this name, which is most appropriate, should be retained. Persoon cites with doubt Sowerby t. 196, called Boletus radiatus; and Fries, our legal authority, not wishing to use Persoon's name, substituted Sowerby's name on the sacred principles of priority, on which "sacred principle" one can always rely when he wishes to change the name of the man from whom he gets his information. But Sowerby t. 196 does not represent Polyporus alneus either as to habitat, color, or surface, and is far more probably a figure of Polyporus cuticularis. Still we call our plant "Polyporus radiatus Sowerby," and the forms of "Science" are at least duly observed.

SPECIMENS.—Many, from United States and Europe.

Compare aureonitens, brunneus, cucullatus, scrobiculatus.

Forms.

There occurs rarely in the United States a very thin, yellow form with same setae and spores. We have a specimen from Geo. E. Morris, Massachusetts, on maple.

Compare Polyporus subradiatus, in Section 95, a similar plant to Polyporus radiatus, but without setae.

Fig. 689.

Polyporus nodulosus.

POLYPORUS NODULOSUS (Fig. 689).—While agreeing with Polyporus radiatus in every essential character, and exactly the same under the microscope, this has numerous small, imbricate pilei not inaptly described as "nodules." It grows on beech, and is only a beech form of Polyporus radiatus.

ILLUSTRATIONS.—Fries' Icones, t. 187. It shows the manner of growth, but the color will not do at all. Rostk., t. 56 (as Polyporus polymorphus). Picture is not bad.

Compare fuscolutescens, polymorphus.

POLYPORUS DRYADEUS.—Pileus sessile, often large, a foot even in diameter, 2-3 inches thick. Surface with a thin but distinct crust, brown. Context medium, soft, reddish brown color (Sudan brown), with a sheen. Pores small, round, subconcolorous, 1-2 cm. long. Setae straight, rare, 8 x 40 mic. Spores globose, smooth, hyaline or pale colored, 7-8 mic.

This is not a rare plant in France, England, and Central Europe, growing usually on oak. It is said to be found also on beech and elm. It is quite rare in more northern localities, and in Sweden Fries in his latest work records it as "v. s.," though in one of his earlier works he mentions seeing it. Romell has only lately found it around Stockholm. In the United States we have about the same history. Schweinitz misrecords it, and the older generation hardly knew it. It is rare in our Northern and Eastern States, and only two years ago Professor Peck found it for the first time. Long tells us that it is frequent in the Southwest, also that it is a root rot and usually develops near the base of the tree. It has been noted from early days for exuding drops of water, as shown in our figure, Mycological Notes, p. 491.

The spores of Polyporus dryadeus as found in specimens are usually hyaline or with the faintest trace of color, but we have a recent collection from Hawaii with spores pale, but distinctly colored. We believe now that the spores are hyaline when young, pale colored when mature, and hence the plant should be entered in the next General Division in Section 100 B. (cfr. Note 232, Letter 56.)

ILLUSTRATIONS.—Bulliard, t. 458, very good. Hussey, t. 21, not so good. Fries miscites it as t. 26, and both Murrill and Saccardo demonstrate the thoroughness of their "investigations" by copying the mistake. Hartig's figure is a misdetermination for Polyporus corruscans, and the other plant disease men, Comes, Istvanffi, and Tubeuf, have probably copied it. We have not looked up their figures.

SPECIMENS.—Mostly from Europe, a few only from United States. Recently received also from Dr. J. B. Cleland, Australia, and C. N. Forbes, Hawaii.

Compare pseudo-igniarius.

The following plants have been considered in Section 35, p. 160 of our Stipitate Polyporoids, on account of their evidently close relationship to Polyporus circinatus.

POLYPORUS TRIQUETER.—Pileus half dimidiate, (3-4 cm. thick), reduced at the base. Surface and context yellow ochre. Pores darker. Surface tomentose, soft. Context softer and spongy near the demarkation. Pores small, round. Setae large, hooked. Spores 3 x 5, hyaline (?), probably immature.

We take this in the supposed sense of Fries, teste Romell (Mr. Romell found it rare on Pinus sylvestris). It is a rare form in Europe, and has the same color and microscopic features as Polyporus circinnatus, of which it is probably only a form. I do not know it from the United States. I think it is not triqueter of Persoon (cfr. cuticularis).

SPECIMENS.—France, Dr. Pierrhugues; Austria, Dr. F. v. Hohnel; Sweden, L. Romell.

POLYPORUS LEPORINUS.—Exactly the same as the preceding plant in every feature excepting that it is thin, (less than a cm. thick), and there is a stronger contrast between the firm lower and soft upper flesh. On this account it was called Polyporus dualis by Peck. It is a very rare plant both in Europe and the United States.

SPECIMENS.—Sweden, L. Romell, fine specimens; C. G. L., effete; Bohemia, Dr. Fr. Bubak; Canada, C. G. L.; Michigan, Dr. C. H. Kauffman.

POLYPORUS ADUNCUS.—Pileus dimidiate, 1 cm. thick, unicolorous brown. Surface with coarse, brown, hispid hairs. Context brown. Pores small, round, brown. Setae few, large, 8-10 x 60-75 mic., deeply colored, with peculiar, hooked points. Spores hyaline, smooth, 4 x 5-6 mic., not guttulate. Spores are a little larger than Polyporus leporinus, but otherwise it is exactly the same, excepting the surface, which is quite different. It is very rare, only known from one specimen from E. K. Abbott, Monterey, Cal., and grew on the roots of a pine tree. To the eye it resembles Polyporus cuticularis, but has no relation to it otherwise.

FOURTH GENERAL DIVISION.

SPORES AND CONTEXT COLORED. SPORES NOT TRUNCATE.

All previous sections have hyaline spores.

SECTION 97. CONTEXT PALE (WHITE?) OR ISABELLINE. SETAE NONE.

POLYPORUS BERNIERI.—Pileus sessile, dimidiate, large, 10-50 cm. Surface brown, strigose, hispid, at length black. Context yellowish, isabelline, very light weight, spongy. Pores large, 1-2 mm., angular, with uneven, angular mouths. Pore tissue concolorous. Setae, none. Spores pale colored, 6-7 x 8-10, abundant, smooth.

The type is at Paris. It came from New Caledonia. It is noteworthy for its light weight and color.

SPECIMEN.—Cotype, Museum Paris.

POLYPORUS DIELSII.—This is a very large species, said to be "40 x 40 cm." It is only known from a piece at Berlin, and came from Australia. The spores, in abundance, are large, 7 x 10, pale colored, smooth. The pores are brown, but the flesh is much paler and may have been white when fresh. The hyphae of the pore tissue is pale, the hymenial elements dark. This is a reversal of what is usually found in the polypores. The plant has a distinct brown cuticle. It is a very curious species and imperfectly known.

SECTION 98. CONTEXT YELLOW. SETAE NONE.

Both species known in this section are thin plants.

POLYPORUS RHEICOLOR.—Pileus imbricate, thin (2-3 mm.). Surface even, minutely tomentose, dark brown. Context scanty, thin (1-5 mm.), bright yellow. Tubes minute, 1-2 mm. long, brown, darker color than the context. Spores subglobose, 4 x 4-5, deeply colored, smooth.

This is a species of the American tropics only, as far as known. It is represented in the museums from Cuba, Brazil, Central America, etc., mostly by single pileoli, but we judge it grows densely imbricate as distributed by Rick. A specimen we have proceeds from a common base, but we think it is unusual. The context is usually thin (1 mm.), but we have a specimen from Rev. Torrend that has flesh 5 mm. thick,

and is a true Polyporus. The bright yellow flesh is a marked character of the species. It has been classed as Polystictus, and is the only polypore with colored spores likely to be so classed on account of its thinness. The plant has also been named Polyporus Splitgerberi and Polyporus sulphuratus, neither a very suitable name for it.

SPECIMENS.—Brazil, Anna Brockes, Rev. C. Torrend.

Compare hinnuleus, Splitgerberi, sulphuratus.

POLYPORUS CITREUS has been known since 1860 only from a little type at Kew, from Australia, not much bigger than your thumb nail. It is thin, yellow, and similar to Polyporus rheicolor, but the spores are very pale, with only the slightest tinge of color.

SECTION 99. CONTEXT BROWN. SETAE NONE.

A.—Plants very minute.

POLYPORUS PYGMAEUS.—Pileus minute, erumpent from branches, flabelliform. Color brown. Pores large in comparison to size of plant. Spores, teste Murrill, 3½ x 5, colored, abundant.

This is a unique little species, and disputes with Polyporus poculus the honor of being the smallest Polyporus known. It is about 2 mm., only, in diameter. Palmer collected it in Mexico and sent it to Ellis, who distributed it as Trametes pusilla. Patouillard evidently received a specimen, for he lists it as "Xanthochrous pusillus, Ellis," Xanthochrous being a new genus that he had "discovered" with yellow spores. We therefore suppose its spores are colored, though the material being scanty we did not examine them. But one collection is known of this little species, which is at the New York Gardens. It is not recorded whether it has setae or not. The name Polyporus pusillus being preoccupied, my friend McGinty changes it to Polyporus pygmaeus.

Compare pusillus.

B.—Pores large. Similar to Hexagona and has been so classed.

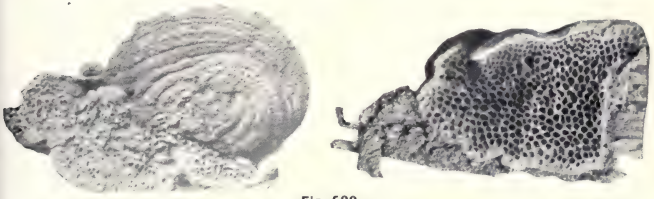


Fig. 690.
Polyporus decipiens.

POLYPORUS DECIPIENS (Fig. 690).—Pileus sessile, dimidiate, triquetrous, unicolorous, dark brown. Surface brown, hard, tomen-

tose, ridged. Flesh hard, firm, brown, descending into the pores. Pores rigid, trametoid, 4-8 mm. long, round or elongated, large, 1-2 mm. Setae, none. Spores abundant, large, elliptical, 8 x 16 mic., deeply colored.

This is an Australian species, unknown elsewhere though apparently not rare in Australia. We have seen several collections of it. It was named by Berkeley, Hexagona decipiens, but it is not a typical Hexagona as to pores, and is anomalous in having colored spores, which no true Hexagona has. Its proper classification is as Trametes, but the same objection, colored spores, holds here. Properly it is a "new genus" (Phaeotrametes McGinty) on the same principle that the other similar "new genera," "Phaeocyphella" and "Phaeoradulum," were manufactured.

SPECIMENS.—Australia, Albert Green, Dr. J. B. Cleland, G. H. Adcock.

C.—Pores small.

POLYPORUS GLOMERATUS. — Pileus yellowish brown, densely imbricate, "forming a mass ½ foot long and two to three inches thick." Surface minutely tomentose, appearing smooth to the eye. Context thin. Pores greenish yellow, small, angular, 8-10 mm. long, tissue concolorous. Setae, none found, but imbedded in the pore tissue are large, deeply colored bodies. Spores abundant, subglobose, 5-6 mic., pale colored, transparent, guttulate.

The above description is partly taken from Peck, who found the plant on a maple tree and named it forty years ago. Peck was unaware of the peculiar structure when he named the plant, and attention has not heretofore been drawn to it. It is a rare plant. Little pieces of the original collection are at Albany and at Kew, but these were all that were known until 1914, when Dr. Kauffman made two collections. It grew on a maple log, resupinate for several feet, also pileate on a stump. The new pore layers form over the old layers, so that it might be classed as Fomes, but the old layers are dead and we think it an annual. From the little specimens preserved, Cooke, Murrill, and myself have all referred it to Polyporus radiatus or Polyporus nodulosus, but when we come to examine the structure we find it a very different thing. Imbedded in the hyphae tissue are large (12-15 mic. thick) deeply colored, pointed, seta-like hyphae such as occur in Fomes pachyphloeus (cfr. figure 600, page 261, Synopsis of Fomes). Peck was unaware of this peculiar structure when he named the plant, and attention has not heretofore been drawn to it. We know no other American plant with this structure. We have similar plants with same peculiar structure from Mexico (Polyporus Rickii).

SPECIMENS.—A liberal supply from Dr. C. H. Kauffman, Michigan, who is the only one who has collected the plant in recent years. Since above was written, however, we have learned that Morgan found the plant around Cincinnati, and we have his specimen.

POLYPORUS RICKII.—Recently named from Brazil, is an abnormal Ptychogaster form of some species similar to Polyporus glomeratus. It has abundant, colored, conidial spores, all sizes and shapes. Ptychogaster Cubensis is suggested as being the same thing. I hardly feel that the subject is much cleared up by the publication of such species.

Fig. 691,
Polyporus nilgheriensis.

POLYPORUS NILGHERIENSIS (Fig. 691).—Pileus thin, dimidiate, dark argus brown. Surface with dark brown, subzonate velumen. Context thin, concolorous. Pores minute, round, 2-3 mm. long, with concolorous tissue and dark mouths. Setae, none. Spores globose, 4 mic., pale colored.

Polyporus nilgheriensis has been referred to as a Fomes. While the pores have a layer effect, we believe this is due to a union of confluent pilei and that the plant is better classed as a lignescent Polyporus. It is a very distinct species only known from a few collections from India, and named originally by Montagne. It has been most badly confused, and in the cover before me are 29 specimens so named, only one, the cotype, having any resemblance or relation whatever to it. There was a cotype in Hooker's herbarium, which Berkeley for some reason evidently thought was wrong, for he marked it "non," and so determined another species from India in Hooker's herbarium. He passed the mistake on to Fries, who enlarged on it by so referring Polystictus pergamenus from Mexico. Then Patouillard fell into the trap, but Murrill escaped, by what fortunate chance we are unable to surmise. Polyporus nilgheriensis is given in Saccardo as growing in India, Carolina, United States, British America, Cuba, and Central America, all wrong excepting the first.

Compare Garckeanus.

POLYPORUS SPADICEUS.—Pileus thin, rigid, 2-3 mm. thick. Surface smooth, brown, with narrow, raised, hard, concentric zones. Context brown, thin. Pores minute. Setae, none. Spores abundant. globose, 4 mic., colored.

To the eye this is the same as Polyporus substygius, and our figure 698, page 364, might represent either. The absence of setæ and abundant spores mark the difference. The type at Kew is a single specimen from India. We have it abundantly from Africa. The species is quite close to Fomes fastuosus.

SPECIMENS.—Dr. G. Zenker, Kamerun, Africa.

Compare Fomes halconensis.

POLYPORUS CARYOPHYLLUS.—Pileus applanate, sessile (6 x 8 x 1), unicolorous, dark reddish brown (chestnut). Surface soft, velvety, sometimes forms a pad 1-2 mm. thick, but disappears or becomes indurated on old specimens. Flesh hard, fibrillose, concolorous. Pores minute, concolorous, 3-5 mm. long. Setae, none. Spores globose, 3½-4 mic., deeply colored.

Cooke gave the plant a good name which well expresses its color. There are abundant types from Brazil at Kew. It is also found in Brazil by Rev. Rick. The plant is a Polyporus, not Fomes as found in Saccardo.

SPECIMENS.—Brazil, Rev. J. Rick, Rev. F. Thiessen.

POLYPORUS PUBERTATIS (Fig. 692).—Pileus sessile (3 x 6 x 1½ cm.), unicolorous dark brown (Verona brown). Surface minutely pubescent, soft to the touch. Flesh concolorous, hard, slightly punky. Pores minute, round, 3-5 mm. long, with concolorous tissue and mouths. Setae, none. Spores abundant, 3 x 5, elliptical, very pale colored.

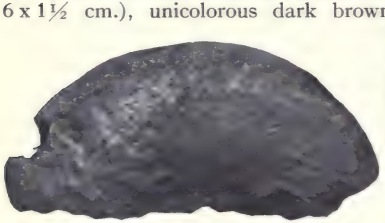


Fig. 692.
Polyporus pubertatis.

Based on a collection from Prof. A. Yasuda, Japan (No. 38). It is unknown to us otherwise.

POLYPORUS WILSONII.—We know this only from our notes, in New York Gardens. It came from Honduras. Context and pores bright rhei color. Shape like Polyporus gilvus. Surface soft, velvety, pubescent. Setae none. Spores 3 x 4, pale colored. It impressed us as something very distinct. It is only known from the type collection.

POLYPORUS MELAENUS.—Pileus thin, sessile (described 10-20 cm. broad). Surface smooth, black. Context buckthorn brown, hard, brittle. Pores much

darker than the context, minute. Setae none. Spores globose, large, 10 mic., pale colored.

This was named from Java (Zoll. 2058), but the only specimen I have noted is in Patouillard's herbarium. It is rigid and brittle and is not a Polystictus, as compiled in Saccardo, nor has it any relation to caliginosus as stated.

SECTION 100. CONTEXT BROWN. SETAE PRESENT.

A.—Surface tomentose or hispid.

POLYPORUS HISPIDUS.—Pileus sessile, usually large, 8-12 inches, and 1-2 inches thick. Surface strongly hirsute, hispid. Flesh at first soft, at length dry and fragile. Tubes small, ⅓-½ mm., and very long, from 2-3 cm.; fragile when dry, when old, larger and torn. Setae rare and uncertain. Spores abundant, globose, 8-10 mic., deeply colored, smooth.

This is the largest species in this section, and is said to reach 18 inches. It is quite frequent in Europe, growing on frondose wood, apple, ash, and oak in preference. When in its prime it is a striking fungus, bright orange as we remember the only time we ever gathered it. It is described as dull orange or sienna. It turns black in drying and in situ. We are told by Sowerby that it "turns black and rots." The plant has in abundance a yellow coloring matter easily soluble in water. The herbarium sheets are usually stained with it. This coloring matter could be fixed and used in dyeing were it bright enough or abundant enough to warrant. The director at Kew had some experiments made along this line at one time. In the United States, Polyporus hispidus is rather rare and of a southern range.

ILLUSTRATIONS.—Boudier, t. 158, is the best; Gillet, very good, but rather pale color. Others cited are Bulliard, t. 210 and 493, the latter the better; Bolton, t. 161; Greville, t. 14; Hussey, t. 29 and 31; Sowerby, t. 345; and a number of others in unimportant works.

SPECIMENS.—A number, both from Europe and United States. Our collections are mostly from Florida and New Jersey, and the plant has an evident southern distribution. Lea found it around Cincinnati. We never did.

Compare Bankeri, endocrocinus, Hausmanni, macroporus.

POLYPORUS CUTICULARIS (Figs. 693 and 694).—Pileus applanate, dimidiate, imbricate. Surface tomentose with appressed, brown hairs, zonate when young. Context varying from 3-10 mm. thick, hard, fibrillose, ferruginous brown (Sudan brown). Pores small, varying in size, angular or irregular, 5-8 mm. long, with concolorous tissue. Mouths often stuffed or overgrown, when fresh strongly glancing. Setae very scanty, sometimes not found at all, straight. Spores abundant, globose or subglobose, deeply colored, largest 7 x 7-8, many smaller, 4-5 x 5-6.

This grows in the greatest abundance in the United States in the fall of the year, preferably on beech or maple, often densely imbricate over large areas of the log (Fig. 694). It is frequent also in France on beech logs, and on comparison the European plant can not be told from the American. When it first develops, which is always late in the season, it is soft and watery, and the surface is beautifully zoned.

It loses these characters when old, but it usually is of short duration. It is infested by a large, round worm that quickly destroys it. It is a curious fact that we have never noted this particular worm in any other species of fungus. Polyporus cuticularis bears, unfortunately, a most inapt name, and its early history was badly confused. Bulliard gave a badly colored figure of it (t. 462), so poor that Persoon, who knew the plant well, did not recognize the figure of Bulliard. Persoon called it, evidently, Polyporus triqueter. Fries' description seems to apply to the plant, and he took Bulliard's name, but Fries' specimen at Kew of Polyporus cuticularis is labeled

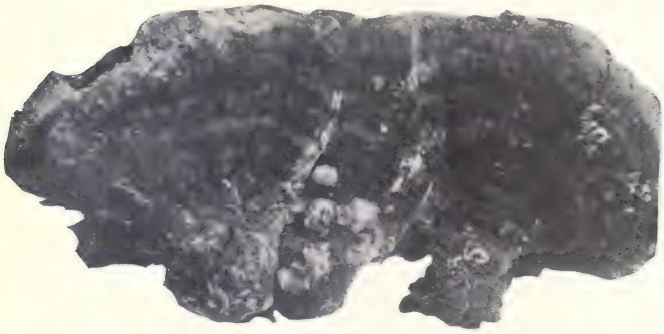


Fig. 693.

Polyporus cuticularis.

Trametes rubiginosa. The plant has been generally known both in Europe and America under the name Polyporus cuticularis. All American mycologists have had it right, until Murrill came along and spun a fairy story about it being Polyporus perplexens of Peck (cfr. Myc. Notes, p. 378). Professor Peck always called the plant, correctly, Polyporus cuticularis. We do not know why the plant was called cuticularis. It has no application to it. In Bulliard's figure the flesh is shown thin, 2 mm., and we supposed Bulliard's name meant that the plant has thin flesh like a cuticle. If so, it is a delusion, for the flesh is rarely less than ½ cm. thick, and often a cm. or more.

ILLUSTRATIONS.—No figure seems to have been published excepting Bulliard's badly-colored plate, t. 462.

SPECIMENS.—Many, from United States and Europe. The Japanese analogue we list under the following name.

Compare fusco-velutinus, Jamaicensis, Ludovicianus, perplexus, rubiginosus.

POLYPORUS MIKADOI (Fig. 695).—The Japanese form of Polyporus cuticularis, and perhaps, too close to the European plant. It has the same context, color, and general appearance, but is a smaller plant (4 x 2 x 2½ cm.), with smaller spores (3-4 x 4-5 mic.), and no setae found. It seems constant in Japan, and we have five collections (cfr. Letter 43, p. 3).

SPECIMENS.—Japan, T. Yoshinaga (No. 7), A. Yasuda (Nos. 6, 75, and 112), J. Umemura (No. 59).

POLYPORUS RHEADES (Fig. 696).—Pileus sessile, dimidiate, subglobose, or ungulate, often imbricate. Surface tomentose, velutinate, with short, fine, brown hairs. There is at first developed a

Fig. 694.

Polyporus cuticularis. Photographed, reduced, in situ, to show usual manner of growth.

mycelial core, hard, amorphous, grumous, dark brown. Flesh fibrillose, ferruginous brown (Sudan brown). At first zonate, soft, watery, and spongy, at length dry, hard. Pores small, round, about 1 cm. long, with tissue concolorous with the context, when fresh the mouths silvery and glancing. Hyphae deeply colored. Setae scanty and rare, often not found. Spores very abundant, globose or compressed globose, 5-6 x 6-7, deeply colored, smooth.

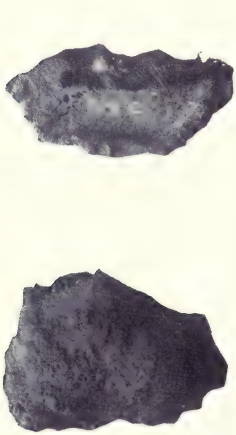


Fig. 695.
Polyporus Mikadoi.

Fig. 696.
Polyporus rheades.

This is not a frequent species in Europe, and has borne a number of names. Its history has been gradually unfolding for us for a number of years, and only lately have we gotten a comprehensive view of it. Originally it was called Polyporus rheades by Persoon from specimens sent him by Tussac, host not known. The specimens are preserved in good condition at Leiden. Then Fries found it on poplar around Upsala and named it Polyporus vulpinus. Then he found it growing soft and spongy on oak, and called it Polyporus corruscans. Then he met old, indurated specimens on oak and referred it to Polyporus fulvus "Scop." He never knew that these three plants were all the same. Bresadola illustrated it as Polyporus rheades growing on Tamarix, which Patouillard changed to Polyporus tamaricis and Bresadola accepted. We have always supposed the plant on Tamarix was a different species, but when we compared them to find the difference, we found them exactly the same.

Polyporus rheades first develops a mycelial core of a different texture and a different nature entirely from the flesh. Hartig first pointed this out under the misdetermination of Polyporus dryadeus. This core is not only characteristic, but peculiar to the species as far as known. (We think "Fomes" graveolens has a similar development, but that is another story.) It is rather a rare plant in Europe. In

Sweden it grows on poplar and oak. The pileus on oak is usually solitary, large, subglobose. On Populus it is imbricate. It is the same fungus, but the difference is due, Mr. Long tells us, to the resistance of the different wood. On both hosts it is a heart rot, but it has no power to attack the sap wood of the oak, hence the fruit is developed from some accidental opening like a knot hole or a broken branch, and from a small base. Poplar is a softer wood, and the fungus destroys the sap wood, and the fruit develops from a broad base.

In Germany Hartig illustrated Polyporus rheades as Polyporus dryadeus, and his figure is so characteristic, and the account so plain, that the misname is evident. It is probably the basis of Polyporus rheades of German works, though both species undoubtedly grow there. We have found Polyporus rheades at Berlin. In France it does not seem to have been recognized since Persoon's day, until Patouillard called it Polyporus tamaricis. Quélet may have had it right. In America we only know the oak form which Berkeley called Polyporus dryophilus. That also is rare, but more frequent in our Southwest. Morgan collected it, and Long recently had quite an article on it under Berkeley's name. Polyporus dryophilus. We do not think it advisable to use this American name when the plant has several names in Europe, and dryophilus is likely to be confused with Polyporus dryadeus, an entirely different species.

SPECIMENS.—We have the following collections, and have indicated in parentheses the names they were originally labeled. Washington, W. H. Long (dryophilus); Ohio, G. D. Smith (dryophilus), A. P. Morgan (dryophilus); California, S. B. Parish (corruscans), L. C. C. Krieger (corruscans); France, Dr. Pierrhugues, Ernest Olivier, Museum Paris (all as tamaricis); Sweden, C. G. Lloyd (corruscans), L. Romell (fulvus), Erik Haglund (vulpinus); Denmark, Jens Lind (vulpinus); Germany, C. G. Lloyd (corruscans).

Compare corruscans, dryophilus, Friesii, inonotus, tamaricis, vulpinus.

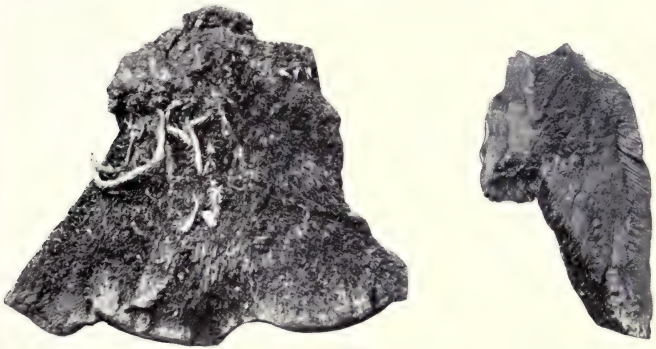


Fig. 697.

Polyporus Farlowii.

POLYPORUS FARLOWII (Fig. 697).—Pileus applanate, wavy. Surface strongly hispid, with suberect, brown hairs. Context hard, ferruginous, brown (antique brown), fibrillose. Pores small, round, firm, concolorous. Setae abundant, straight, projecting 30 mic. Spores colored, elliptical, 2½ x 4½-5.

The type at Kew was collected in Arizona and, according to the label, sent by Farlow to Cooke, who determined it as Polyporus

endocrocinus. The yellow coloring matter is not soluble in water, but readily so in a potash solution. This must be an unusual species in our Western States. It has never reached us, nor is it found at New York.

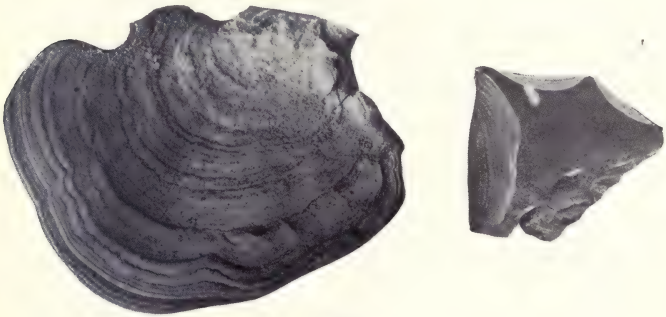


Fig. 698.
Polyporus substygius.

POLYPORUS SUBSTYGIUS (Fig. 698).—Pileus thin, rigid, 2-3 mm. thick. Surface smooth, brown, with narrow, raised, hard, concentric zones. Context brown, thin. Pores minute, hard, concolorous, 1-1½ mm. long. Setae abundant, with slightly thickened base. Spores (?) globose, 3-4 mic., pale colored.

The above notes are made from type at Kew, a single specimen from Ceylon. Others of Cooke's naming, from Malay, appear to us to be the same, though the pileus is evidently velvety. We have also same plant from Philippines (referred to Polyporus gilvus originally). In Samoa our collections are also distinctly velvety, and part of the collection we should have referred to Polystictus tabacinus. Polyporus substygius is quite close to Polystictus tabacinus, and we are not sure they are distinct. Substygius is not flaccid, but hard and rigid; but for all that is probably better classed as a Polystictus (compare also Polyporus spadiceus in Section 99). Polystictus tabacinus is supposed to have hyaline spores, and we are not sure but that Polyporus substygius also has.

SPECIMENS.—Abundantly from Samoa, which seem to run into tabacinus.

B.—Surface smooth, or at length smooth.

POLYPORUS PLORANS.—Pileus sessile, dimidiate, large, 10-50 cm. Surface velutinate, at length smooth. Context reddish brown, light, friable. Pores medium, ½-1 mm., very long, 3-6 cm.,

concolorous. Setae, none found. Spores abundant, 7 x 9, deeply colored, smooth.

The types are at Paris. It grows in Algiers on poplar, and is evidently of a quick growth. It exudes water drops abundantly when growing, hence the name. The plant is quite close to Polyporus hispidus, but has smaller pores and does not turn black in drying. We have a collection from India that we referred here, but with some doubt.

POLYPORUS TINCTORIUS.—Pileus large, sessile. Surface rugulose, but not hispid. Context deep, reddish brown, said to be at first soft and spongy but becoming compact, hard, brittle. Pores large, with unequal mouths, long (one to two inches), concolorous as to tissue, but the hymenium light yellow, so that a section has a variegated effect. Setae, none found. Spores abundant, large, subglobose, 8-9 x 10-11, deeply colored, smooth, with granular contents.

The plant has an abundant yellow coloring matter, and is used by the natives as a dye. Patouillard has specimens that he purchased in a shop in Algeria. It grows only in northern Africa, and only on Pistacia atlantica as far as known. In general characters it is close to Polyporus hispidus and Polyporus plorans, but the flesh is of a deeper color and much firmer. The surface, as far as I could tell from specimens seen, is not hispid.

POLYPORUS FULVOMELLEUS.—Pileus dimidiate, thick, globose-ungulate. Surface hirsute with coarse hairs. Context light, bright rhei color. Pores small, regular. Setae curved. Spores abundant, colored, 6 x 8.

We only know this species from having seen it in New York Botanical Gardens. There are two collections made in the higher altitudes of Jamaica. In general shape and size it resembles the larger collections of Polyporus fruticum.

POLYPORUS PERTENUIS.—Pileus thin, brittle, imbricate. Surface brown, hispid. Context brown. Pores small, round, concolorous. Setae abundant, slender. Spores scanty, pale colored.

This is a very thin species, known at New York Gardens from two collections, Cuba and Panama. It reminds one of Polyporus licnoides, but is more brittle and has colored spores. The abundant setae were not noted in the original description.

POLYPORUS PATOUILLARDII.—Pileus sessile, applanate, 2-3 cm. thick. Surface smooth, brown, dull. Flesh brittle, hard, faintly zonate, with a satiny luster, dark brown (antique brown). Pores small, round, 1-1½ cm. deep, pale yellowish brown, more yellow than the context. Imbedded in the pore tissue are thick, deeply colored, rigid hyphae (cfr. Fig. 600, p. 261, Synopsis Fomes). Setae scattered, thick, straight, projecting 20 mic. Spores abundant, elliptical, 4-6, pale colored.

Rev. Rick has named and distributed this from Brazil (No. 25 as lineatoscaber) and we have specimens to correspond. It has peculiar, colored flesh, with a luster on the order of Polyporus dryadeus. Many

polypores have what is called "glancing" pore mouths, when the shade of color appears different according to the angle of the light. This is the only species in which we have noted the same effect on the context. The peculiar setae found in the pore tissue are not found in the context. Other species of this same "genus" (Oxyuris) have these setae in both context and pore tissue.

This plant from the American tropics is only recently known from Brazil, but has lately reached me from E. D. Merrill, Philippines, G. Yamada, Japan, and E. Cheel, Australia.

SPECIMENS.—Brazil, Rev. F. Thiessen, Rev. Rick, P. Pio Buck; Philippines, E. D. Merrill; Japan, G. Yamada; Australia, E. Cheel.

Compare fusco-badius.

Polyporus dryadeus (see page 352) is probably better classed in this section.

SECTION 101. CONTEXT BROWN. LIGHT, SPONGY, FIBRILLOSE. SETAE, NONE.

POLYPORUS FRUTICUM (Fig. 699).—Pileus sessile, often encircling branches, with dual texture, hard pores, and soft, spongy context. Usually the pores measure 2-4 mm., the soft, fibrous flesh 1-2 cm., but more rarely a thin specimen occurs with the spongy flesh not thicker than the pores. Color varies from bright brown (buckthorn brown), when young, to dark brown (Mars brown), when old. Pores concolorous, minute, 2-4 mm. long, with new layers sometimes spreading irregularly over the old ones (then it is technically a "Fomes"). Setae, none. Spores subglobose, small, 3 mic., pale colored.

This species, readily recognized by its dual nature, is frequent in warm countries of both hemispheres. We have noted it from Florida, West Indies, Brazil, Australia, Malay, Philippines, Africa. Sometimes it grows dimidiate on dead logs, evidently, and other times it encircles branches, even the living branches. The original specimen from Cuba (Fig. 700) was thin, and grew on a living branch (Asimina) like a fruit. Berkeley gave it a good name, and it has others—Polyporus chrysites, monochrous (Berkeley, not Montagne), capucinus, pseudo-conchatus, and Weberianus—all synonyms for us. Usually the plant is thick, and we at one time thought the thin collections were different, but on considering the various collections at Kew, we cannot see where the line can be drawn. However, if one wishes to make species on thickness, the thick specimens can be called Polyporus Weberianus, the thin ones Polyporus fruticum, chrysites, or capucinus. At one time we also thought the specimens grown on living branches and encircling the branches were different from those broadly attached to logs. We had to abandon that also.

SPECIMENS.—Florida, G. C. Fisher; Brazil, Dr. J. Dutra, Rev. F. Thiessen, Rev. J. Rick, P. Pio Buck; Barbados, A. A. Evelyn. Our specimens are all from American tropics, but there are several collections at Kew from Malay and other Eastern countries.

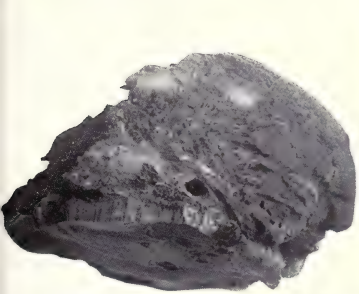
Compare amplectus, Biretum, chrysites, corrosus, Weberianus, also Fomes pseudoconchatus.

POLYPORUS MINUTOFRUTICUM.—Pileus very small, orbicular, ½ to 1 cm. in diameter, ferruginous, brown. Coutext soft, spongy, concolorous. Pores darker, minute, the mouths round or elongated, irregular. Spores hyaline, globose, 4-4½ mic. smooth.

This little species is attached to twigs in the same manner as Polyporus fruticum. It has the same texture and color and might be held as a small form, but we think it distinct in its very small size and larger spores. Though the spores appear hyaline, we put it in this section from its close relation to Polyporus fruticum.

SPECIMENS.—Madagascar, Henri Perrier de la Bathie.

Fig. 700.



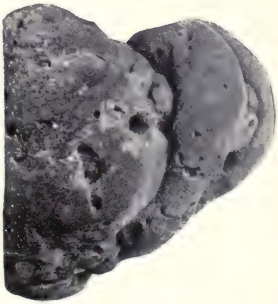


Fig. 699.
Polyporus fruticum.

POLYPORUS CAPUCINUS (Fig. 701).—Characters all as Polyporus fruticum excepting instead of being a globose plant with thick flesh, and encircling twigs as Polyporus fruticum usually does, it differs in being a thin, applanate plant and dimidiate. The type is so different from the usual form of Polyporus fruticum that were the extreme forms all that were known they could not possibly be referred to the same species. We have seen so many intermediate forms, however, viz., thin plants encircling twigs (as the type of fruticum) and thick forms growing dimidiate, that I should not know how to refer them if I held them different, the pores, spores, context nature, and color being the same. I think there is no warrant in applying the name Polyporus capucinus to the thick, globose form, as has been recently done. If not called Polyporus fruticum, it should be called Polyporus pseudo-conchatus, or Polyporus Weberianus.

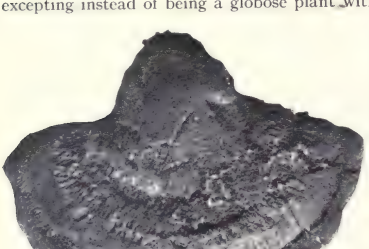


Fig. 701.

Compare chrysites, monochrous, also Fomes Bonianus, subpectinatus.

POLYPORUS CLEMENSIAE.—Pileus dark brown, sessile, dimidiate, fragile, spongy. Pores small, regular, round, ⅓-½ mm., 5 mm. long. Cystidia none. Spores 4-5 x 7, deeply colored when ripe, but many hyaline observed.

This appears to be one of the more rare Philippine species, as it has been scantily distributed. The color and texture of the flesh is similar to that of Polyporus Schweinitzii.

FIFTH GENERAL DIVISION.

POLYPORUS-GANODERMUS. CONTEXT BROWN. SPORES COLORED, TRUNCATE.

The sections of Ganodermus are based on peculiar spore characters as explained in our Stipitate Polyporoids, page 99, and Synopsis Fomes, page 262. Ganodermus are readily subdivided into three sections, as follows:

Stipitate Annuals (see Stipitate Polyporoids, page 102).

Sessile Fomes (see Synopsis Fomes, page 262).

Sessile Annuals, as follows:

There is no section of Ganodermus in the genus Polystictus nor any resupinate species (Poria) known.

SECTION 102. CONTEXT SOFT, SPONGY.

POLYPORUS COLOSSUS (Fig. 702).—Pileus large, 6-8 inches 2 inches thick, sessile, dimidiate. Surface with a very thin, separable reddish brown, laccate crust. Context soft, spongy, light weight, pale buff color. Pores small, ⅓ mm., 3-10 mm. long, short in proportion to the thick flesh. Spores large, ovate, 12 x 20 mic., apiculate, distinctly rough.

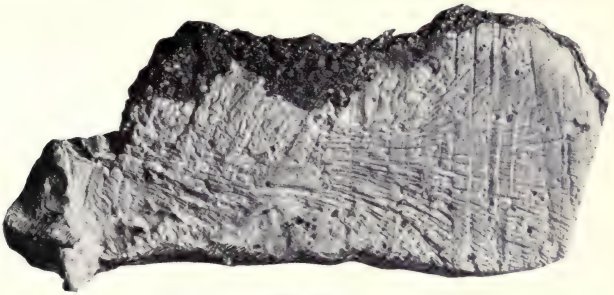


Fig. 702.
Polyporus colossus.

This is a large species of tropical America and Africa, but hardly large enough to be called colossus. Compared to another that grows in tropical America (Polyporus talpae) it is a pygmy. Fries named it "colossus" from the West Indies, but did not give the size of his specimen. The fragment that remains is only a few inches in diameter. At Kew there is a record from Africa, where it has proved more common than in the American tropics, size 9 x 12 x 5 inches. The soft, spongy flesh is characteristic, no other similar Ganodermus known. Evidently it is a plant of rapid growth.

Patouillard first met a conidial form which had in the tissue large, globose, rough, colored, conidial spores with scattered tubercles (see Fig. 703). He called it Polyporus Adansonii. Afterward when he received the normal form with normal spores (Fig. 704), he considered it was the same plant, and we think correctly, and called it Polyporus obockensis. Of course, he had no way of knowing anything about Fries' plant in a jar at Upsala. Massee also discovered it was a new species and called it Polyporus Hollandii. We have already commented on Murrill's bull in discovering this was a "new genus," with "globose, smooth, hyaline spores" (sic). Further remarks under this head are not necessary. How it happened that this fairly common species did not drift into Berkeley we do not know. Polyporus colossus occurs in the American tropics, but is not common, as we have only one collection from this region and there is but one at New York. It is quite common in Africa, however, and we have a collection from India.

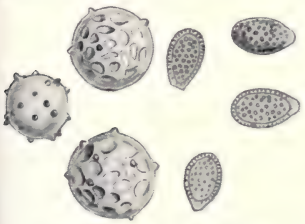


Fig. 703. **Fig. 704.**

SPECIMENS.—Barbados, A. A. Evelyn; Africa, P. Hariot; India, J. H. Irani.
Compare Adansonii, Hollandii, obockensis.

SECTION 103. CONTEXT FIRM, NOT SPONGY.

The annual Ganodermus-Polyporus forms are, we believe, distinct species from the perennial Fomes forms (cfr. Synopsis Fomes, p. 262), though it is not an easy matter to tell them. They are confusing, also, to distinguish from sessile forms of normally stipitate species like Polyporus lucidus. The species are very similar, and distinguishing characters are hard to find. The subject is also complicated by a flood of new species recently proposed in this section. When one looks up these specimens, they are mostly found to be about the same thing. The following description will apply to them all. Pileus sessile, applanate, with a thin, reddish brown, more or less laccate surface. Context dark burnt umber, varying light. Pores small, round, from 1-1½ cm. long, with white or yellow mouths. Spores obovate, truncate at base, 6-10 to 8-10 x 12-14 mic., smooth, varying to strongly punctate. There have been numerous "new species" named, to all of which the above description will apply. The only thing that can be done is to adopt names for the most extreme forms, and then to refer your specimens to the nearest one. The spores even in the same specimens vary from smooth to strongly punctate, but those with strongly punctate surfaces are said to be "rough."

A.—Spores rough.

POLYPORUS FULVELLUS.—Pileus sessile, dimidiate (6 x 9 x 1½). Surface with a thin, laccate, reddish brown crust. Context firm, hard, burnt umber color, faintly zoned. Pores smooth, round, with white or yellowish mouths when fresh. Spores obovate, 6-8 x 10-12, and distinctly rough.

This species was based on an African plant with rough spores, and it is safe to refer to it any sessile specimen of the lucidus type with rough spores. Saccardo compiled the name in Vol. 9, page 178, and transposed to it a description that he copied in error from another species, which was stipitate. It does not seem to matter much, however, for in the twelve years that have since intervened no one has apparently noticed the difference. We have here referred a similar plant from the American tropics with more globose, rough spores, about 8 x 10. The next form with more yellow pore mouths is practically the same thing, and an earlier name.

SPECIMENS.—Java, Dr. van Leeuwen; Dutch Guiana, Dr. J. Kuyper.

POLYPORUS TROPICUS.—This is a plant the same as preceding, excepting the pore mouths are yellow and spores are more globose and larger—about 10 x 12 we make them. It is only noted from Java, and was recently named oroleucus.

Compare oroleucus.

B.—Spores smooth or slightly rough.

The general description of these "species" is indicated under the general head.

POLYPORUS OERSTEDII (Fig. 705).—Pileus substance rather soft. Context color dark. Surface dully laccate. Pore mouths yellowish. Frequent in tropics, and varying in degree of the laccate surface. The type specimen, in a jar at Upsala, does not bear out the description of substance "durissima."

Compare chromoflavus, Dussii, Fici, rufo-albus.

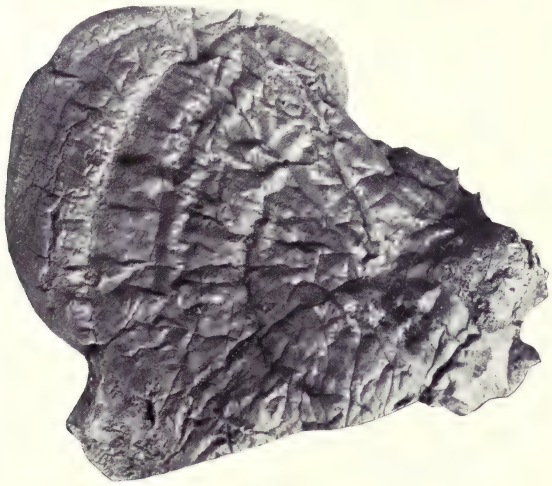


Fig. 705.

Polyporus Oerstedii.

POLYPORUS LIONNETII.—Pileus covered with agglutinate wrinkles. No specimens seen, but species evidently based on the surface characters as shown on Bull. Myc. Soc. 1901, plate 8. It was from Mexico.

POLYPORUS MULTIPLICATUS (Fig. 706).—Pileus marked with narrow, concentric raised zones, dark, laccate. Context dark. The type at Paris is from South America, but we have seen specimens from Tahiti and New Guinea, and have specimens from United States and Egypt that have the same characters. We have seen but one collection from the United States, viz., from F. J. Braendle, Washington, D. C.

POLYPORUS RESINACEUS.—Pileus strongly laccate, context pale. This is very much the same as sessile lucidus, though we do not think Polyporus lucidus is normally ever sessile. It occurs in Europe and the United States. The original was on frondose wood, and the spores were recorded as smooth.

Compare affinis, Martellii, Sequoiae, also Fomes variegatus.

POLYPORUS TUBERCULOSUS.—Same as above, excepting a large, tropical form. It is quite large, two or more feet. We think it is only a large, subsessile tropical form of Polyporus lucidus.

POLYPORUS SESSILIS.—As usually applied it is the same as resinaceus. We have, however, in the United States, an annual, sessile species which we have found on willow. The surface is not so dark, nor strongly laccate, as the preceding plant, and it is broadly attached, never any intimation of a stipe. This we call Polyporus sessilis. We have also a collection with a dull reddish surface that we also here refer with doubt.

Fig. 706.

Polyporus multiplicatus.

POLYPORUS CUPREUS.—A peculiar, reddish brown, dull surface, to my eye about matching Kaiser brown of Ridgway, is the distinguishing feature of this plant. The type from Africa is still preserved at Upsala. We have a recent collection from E. D. Merrill, Philippines. The spores of the Philippine plant 6 x 12 mic. are longer than those in the type.

POLYPORUS CHAFFANGEONI.—Pileus hard, rugulose, brittle. Crust reddish brown. Pore mouths subconcolorous.

This tropical form we have from Rev. Rick, and only know it from his determination and the type at Paris. Rev. Rick refers it to Polyporus pachyotis, which is otherwise unknown to us.

SPECIMENS.—Brazil, Rev. Rick and Rev. F. Theissen; Bengal, S. Hutchings.

Compare formosissimus, pachyotis.

POLYPORUS MEXICANUS.—Pileus thin, rigid, strongly laccate, subsessile. Similar to Polyporus lucidus as to pileus, but hard, thin, and rigid. We have not seen the type, but have a specimen that answers the "description" in a way.

Mr. Murrill surmises that it is not a Ganodermus, and hence Patouillard made a bull when he so referred it. The plant we have belongs to the section Ganodermus, and we do not question that Patouillard's plant also belongs here. We think Patouillard makes very few errors of this nature.

POLYPORUS POLYCHROMUS.—This is a soft, annual, western plant with pileus very much on the order of Polyporus Curtisii excepting that it is sessile. Surface yellowish, slightly laccate. Context zoned. We only know it from the western United States.

POLYPORUS PHILLIPII.—The type is at Berlin from India. Pore mouths are concolorous with the pore tissue which is the only point of difference we can note from the usual form in this section. We have a specimen from Florida with this feature.

SPECIMENS.—Florida, H. S. Fawcett.

POLYPORUS NIGROCRUSTOSUS.—Pileus applanate, with a dull, black, smooth crust. Context very thin, pale isabelline. Pores minute (1-1½ cm. long), pale umber, with concolorous mouths. Spores 10 x 12, oval, punctate, the hyaline membrane but little prolonged at base and rarely truncate.

We propose this name for a specimen received from H. Val. Ryan, Dodabetta, India, which we are unable to refer to any of the previous species. When received, we referred it to Fomes nigrolaccatus, but this specimen is an evident Polyporus (not Fomes).

SECTION 104. POLYPORUS (AMAURODERMUS).

The section Amaurodermus of Polyporus are mostly stipitate (cfr. Stipitate Polyporoids, page 110), and the only sessile one to my notice is not certain.

POLYPORUS DAHLII.—Pileus sessile (about 4 x 3 x 2 cm.). Surface dark, reddish brown, somewhat zonate, dull. Context scanty. Pores regular, long, almost reaching crust. Spores globose, smooth, 8 mic., deeply colored.

This is imperfectly known from one specimen at Berlin from New Guinea. It was named in mss. by Hennings, but not published, as far as I know. To the eye, it resembles a Ganodermus, but its spores are of Amaurodermus. All others with similar spores are stipitate, and while this specimen is sessile, it would not be safe to conclude that this is a character of the species.

SYNONYMS, MISTAKES, SPECIES IMPERFECTLY KNOWN OR NOT KNOWN AT ALL, ETC.

"The shape, size and color of one and the same species of fungus are subject to considerable variation, a fact which has misled many mycologists and caused them to describe already known species as new. Accordingly, many superfluous names of fungi must be eliminated after establishing their identity. Hence our science, suffering surfeit with bad species introduced by error, ignorance or vanity, requires thorough purification."

"Faith in Science is liable to be shaken when it becomes evident how many species already known in scientific works have been described under new names as new species and how many wrongly determined are contained in exsiccatae and museums."

"If nature had spent its millions of years in experimenting, it probably could not have produced as many different species of fungi as have been scribbled together by mankind in one century. In the 22 volumes of Saccardo's Sylloge Fungorum, 73,516 species are named; certainly 1,500 have been named since and thus about 75 thousand species have been published. It is probable that upon thorough revision, many can be eliminated, although it can not be denied that there are also some new good species, not heretofore described."—Hollos.

Of the 75 thousand alleged species that exist I doubt if any individual knows or has known two thousand that are good, and yet there have been several who do not hesitate to discover "new species" from Abrothallus to Zythia. It is the easiest way to pose. When Saccardo covered the field in 1889, 31,927 alleged species were named. In the twenty-five years that has since elapsed, 43,000 additional have been proposed, 42,999 known only to the author, and the mill grinds merrily on.

If the so-called "scientific world" had exerted its utmost ingenuity it could not have evolved a more indefinite, inaccurate or impractical method of naming its objects than has been practiced in mycology. The species of the world are largely the same, there are relatively few of them and they are widely distributed. Mycenastrum Corium, Calvatia lilacina, Polyporus gilvus and many other common species grow in probably every country, and practically every specimen of either of these that has drifted into Europe in the past has been given a new name. There is no way of finding out what they are except to hunt them up where they are preserved, for the description in not one case in a hundred is of any practical use in determining the species. Most of the names that obscure the subject are either based on the scanty knowledge of the "old species" of the party naming them, or on imperfect material that never should have been named. On the following pages we give our opinion of a number of "species" we have seen in the various museums.

acerinus, Europe, Opiz. Nomen nudum.

acriculus, Europe, Karsten. Seems from description to be same as albellus.

Adansonii, Africa, Patouillard. = at least it is so supposed, a curious conidial state of Polyporus colossus.

adiposus, England, Berkeley = Polyporus undatus probably.

aethiops, India. Cooke. Type something dead and discolored (black). Not a species.

affinis, Europe, Boudier = Polyporus resinaceus.

Afzelii, Africa, Fries. No type exists. Trametes roseola at Paris is endorsed as being this plant but I doubt it. Fries states expressly that the context is not "elasticus" and describes it as "albido" and compares it to Polyporus betulinus.

albo-aurantius, Europe, Veuilliot distribution Roumeguere 2403 is Polyporus amorphus.

albo-gilvus, Cuba, Berkeley = Polyporus flavescens. It is a rare plant, only one collection from Brazil at Paris and one at Kew from Cuba.

albo-incarnata, South America, Patouillard. Unknown to me but described as a Poria. Burt's determination Baker 2483 Nicaragua, is Trametes cubenesis with no possible resemblance to description.

albo-roseus, Europe, Karsten. Unknown to me. From description and knowledge of plants of that region I have no doubt it was Polyporus amorphus.

albo-sordescens, Europe. Romell = Polyporus fissilis.

albostygius, Cuba. Berkeley. As long as it is "only known from the type locality" it is a Poria, at least the type (all known) a piece (now) 1½ x 2 cm. is entirely resupinate. It is something unique though, Subiculum thin. Pores minute, 4 mm. long, pale, probably white when fresh, with black pore mouths. Spores not found by me.

albus, England, Hudson. The original description of Hudson refers probably to Polyporus salignus. Fries' account was apparently made up from pictures, Bull, 433 f. 1 and Price f. 78, neither of which represents plants known to me. Bresadola in Fung. Kmet. refers to Polyporus fissilis of this pamphlet. Although Polyporus albus was originally from England, I have not found it in Berkeley's writings although Price claims to have named his specimens from Berkeley's Outlines. Nor does it occur in any of the modern English compilations.

altocedronensis, Cuba. Murrill = Polyporus leucospongius for me on comparison.

amplectus, Florida, Murrill = Polyporus fruticum. Originally from Cuba, when it crosses to Jamaica it becomes Polyporus corrosus and when it occurs in Florida it becomes Polyporus amplectus. All by the same author. It is rare in Florida. Two collections are at New York and one in our museum.

anceps, United States, Peck. This is only known from the original collection made by Prof. Burt in Massachusetts on Hemlock and named by Peck. I found no type at Albany, but in the New York Botanical Gardens are specimens from Burt. It is a white plant, with hard context, minute pores and spores said to be "globose". Except as to "globose" spores, as to which I can not say, it is as to host and other characters, very much same as Polyporus albidus of Europe.

angustus, Australia, Berkeley. Only known from the type, a single specimen, a resupinate piece of Polyporus tephronotus.

apalus, Europe, Léveillé. No type found and almost passed out of European tradition excepting locally in France, where the specimens are Polyporus fumosus.

armeniacus, Scotland, Berkeley. Based on subresupinate specimens of Polyporus amorphus.

ascoboloides, Australia, Berkeley. Type destroyed.

atrostrigosus, New Zealand, Cooke. Seems from the scanty material to have white flesh and pores and black appressed fibrillose surface. It will probably be recognized some day on comparison. I do not know it well enough to refer it to a section, but probably it will go in Section 82. Polyporus setiger from New Zealand in Section 82 is probably the same plant.

aureonitens, United States, Peck = a young condition of Polyporus radiatus.

badius, Java, Junghuhn = Polyporus vinosus. It does not seem to have been included in Saccardo. It was not published by Junghuhn and the color term (badius) has little application to it.

Balansae, South America, Spegazzini. = Polyporus licnoides, cotypes at Paris. Cotypes at Kew are rather Polyporus gilvus.

Bankeri, United States, McGinty. Based on a specimen in Schweinitz' herbarium which Banker, our celebrated Hydnum expert, had published as being Hydnum strigosum (sic), and discovered it to be a "new genus" of Hydnaceae (sic). It has more relation to a honeycomb than it has to a Hydnum. In appreciation of such scientific work. Prof. McGinty named it Polyporus Bankeri. The plant is Polyporus hispidus with large split pores.

Biretum, Australia, Kalchbrenner. No specimen found by me in any museum. From the description it is more probably Polyporus fruticum which grows in Australia, and would about impress Kalchbrenner in this way.

Brenningii, South America, Hennings = Polyporus osseus teste Bresadola in a letter. The type at Berlin would be well named "osseus" for it is "hard as a bone."

breviporus, Australia, Cooke = a thin specimen of Polyporus gilvus.

Brisbanensis, Australia, Berkeley mss. = Polyporus ochroleucus.

Broomei, Rabenhorst, Europe. Exsiccatae No. 2004 type = Polyporus undatus.

brunneus, United States, Schweinitz = Polyporus radiatus (cfr Letter 50). I doubt if the little frustule at Kew, however, is the same.

Burtii, United States, Peck. No type exists. Murrill guesses that it is Polyporus adustus, which seems from description to be a good guess.

caeruleus, Europe, Fries' Hymen. p. 549. Based on an old picture ninety years ago (Fl. Dan. t. 1963) and I think it still rests on it, and nothing else. Polyporus caesius, is the only "blue" sessile Polyporus any one knows in Europe, or elsewhere as far as I know.

caesiellus, Borneo, Cesati. Unknown. Guessed by Saccardo to be related to Polystictus versicolor. Not if its pores are "ferrugineus". Probably Polyporus gilvus or something similar.

caesio-coloratus, Europe, Britzelmayr. No one but Britzelmayr ever found any species in Europe like Polyporus caesius except Polyporus caesius.

caesio-flavus, South America, Patouillard. Unknown to me. Except as to spores like Polyporus cretaceus in Section 81. In the process of compiling it in Saccardo, the spores increased threefold in size, from 3-4 x 1-1½ to 10-10½ x 3-4.

caesiosimulans, United States, Atkinson. Unknown to me. I have thought that it is possibly based on Polyporus semisupinus of this pamphlet though the spores do not at all accord. If it is a species, it is surely a rare one in the United States. Morgan records that semisupinus (or nivosus as he calls it) turns green in spots when bruised, and I have noted same thing. This is a character of Atkinson's species.

callimorphus, Africa, Leveille. Type at Paris is Polyporus licnoides. Recent determination from Philippines I think not the same.

candidus, South America, Spegazzini, = Polyporus conchoides which when fresh is "candidus". It becomes "carneus" in drying.

Caprae, Europe, Britzelmayr = nothing known about it.

carneo-fulvus, South America, Berkeley = Polyporus gilvus. I use the name to designate form with slight reddish cast.

carnosus, Europe, Patouillard. Unknown to me and I think only known from a single collection. The description suggests subsessile lucidus.

carpineus, Europe, Sowerby. t. 231 = a yellowish form of Polyporus adustus.

cartilagineus, Celyon, Berkeley = Polyporus durus. Type at Kew. Cooke compiles this in Australian Handbook as having "substance white". It is as black as his hat.

caseicarnis, South America, Spegazzini. Unknown. Seems from description very similar to Polyporus Eucalyptorum.

caseosus, Brazil, Patouillard. White. Flesh crumbly. Section 81 probably, but unknown to me.

castanophilus, United States, Atkinson = Polyporus croceus. So referred by Murrill who had no specimen as far as I found at New York. Long who is quite familiar with Polyporus croceus says Atkinson's plant which he has seen is the same. I have seen no specimen but I do not question it, as the description accords, and Atkinson seems to discover everything that is bright enough color to draw his attention, to be a "new species".

cerebrinus, England, Berkeley. Type a single specimen, surely nothing normal. Endorsed now as being a myriadoporus form of Polyporus amorphus but it is hardly worth guessing at the origin of such abnormal things.

cervinus, United States, Schweinitz. No specimen in Schweinitz' herbarium, but a little specimen at Upsala which was, after many years, taken by Bresadola in the sense of Polystictus biformis. I doubt it (cfr Letter 50) and the name is a duplicate at any rate, being a Persoonian species.

chromoflavus, West Indies, Patouillard (published?) = Polyporus Oersterii. Species at Berlin.

chrysites, Brazil, Berkeley = Polyporus capucinus. The specimens are bright color but hardly "golden yellow". They are the thin form, corresponding to the types of capucinus in this respect, but for me a thin form of fruticum.

ciliatulus, Europe, Karsten. Very few of his species have ever been recognized by anyone else.

cinctus, England, Berkeley. Teste Bresadola = Polyporus undatus. The types have abundant mycelial growths a kind of "ozonium". There is no account of this growth however, in any of the various other names applied to Polyporus undatus, nor have we ever seen it in connection with this species.

cineratus, Europe, Karsten. Unknown. Said to have white spores. Reads like Polyporus fumosus but grew on Abies. It is curious how many marvelous "new species" Karsten and Quélet found that no one else in Europe ever meets.

cinereo-fuscus, India, Curry = Polyporus semilaccatus discolored.

citromallus, Cuba, Berkeley. A manuscript name attached to a little frustule at Kew. Cooke must have overlooked it when he was "describing" Berkeley's remnants.

comptulus, South America, Berkeley. Only known from very old types in Hooker's herbarium. I believe it to be Trametes cubensis though by no means sure. It is safe to say it will never be recognized with certainty.

Corium, India, Berkeley. Only known from the type and I doubt if it will ever be well known from that. It is white and has a soft flesh. I would not try to give any idea of its characters from such a specimen.

connexus, Brazil, Léveillé. Type (all known) is doubtfully Polyporus rigidus. It has been referred to Polyporus licnoides but surely in error as it has no setae.

contractus, Celyon, Berkeley = the resupinate portion of Polyporus lignosus. It always "contracts" in drying.

corrosus, West Indies, Murrill = Polyporus fruticum. The author got this plant from Florida, Jamaica and Philippines. The first he called Polyporus amplectus, the second Polyporus corrosus, and the Philippine specimen Polyporus fruticum.

corruscans, Europe, Fries. This is the oak form of Polyporus rheades which see (page 362) for detailed history.

crocatus, United States (?) Klotzsch = Polyporus scruposus teste Fries. I have never located any specimen.

crocicolor, mss. at Kew (from Ellis) = Polyporus aurantiacus.

cubensis, Cuba, Berkeley (as var. of plebius) = Polyporus supinus, and this is the name under which Berkeley usually referred it. It has no relation to the plant from New Zealand in Berkeley's herbarium as Polyporus plebius. Nothing very similar to Polyporus supinus grows in the East, nor similar to Trametes plebia in American tropics.

cucullatus, United States, Berkeley. This is known only from the type locality, a couple of little frustules each about size of peas. It has been referred to Polyporus radiatus. I think that is right, or more probably little "nodules" of nodulosus.

cupreus, India, Berkeley = Polyporus carneo-fulvus.

cupreo-vinosus, Brazil, Cooke = Trametes cupreo-roseus and same collection. As Cooke states, it originated in an error in writing the label.

Curreyanus, New Zealand, Berkeley. The type, a very poor specimen, I think is adustus. It is endorsed now as being old dichrous. It is no species at any rate.

decipiens, United States, Schweinitz. Unknown. No specimens preserved. There is a small specimen at Kew (authentic?) which is Polystictus versicolor.

Delavayi, China, Patouillard. Unknown to me. From description may be same as recently named versiporus.

demissus, Australia, Berkeley. Types all known appear to be Polyporus fumosus. Cooke's determination is Polyporus adustus.

digitalis, India, Berkeley. Types all known are very poor. Looks much like Polyporus adustus.

dissectus, Chile, Léveillé. Type at Paris too poor for comment. Probably a little frustule of Polyporus adustus.

dissitus, Ceylon, Berkeley = Polyporus adustus.

dolosa, Java, Léveillé as Thelephora (sic) = Polyporus conchoides. Type at Paris. While the mistaking of a Polyporus as a Thelephora is about as bad a mistake as one can make, the pores of Polyporus conchoides are so minute, they are liable to be overlooked. I have taken it for a Stereum myself, so I can not criticize too severely others who have done it. Fortunately, I found my mistake before I broke into print.

Dozyanus, Java, Léveillé. No specimens exist.

dryophilus, United States, Berkeley = corruscans of Europe, which is the oak form of Polyporus rheades q. v. for history.

Dussii, West Indies, Patouillard. Unknown to me. Seems close to Oerstedii.

endocrocinus, United Stated, Berkeley. Only known from the type locality (Cincinnati) being based on a young specimen of Polyporus hispidus sent by Lea. Morgan incorrectly referred it as synonym for Polyporus Pilotae which is Polyporus croceus, and Ellis distributed (2508) Polyporus croceus erroneously as Polyporus endocrocinus. Murrill referred the type to Polyporus hispidus, and the reference has since been disputed on the sheet at Kew. I have no doubt Murrill is right. The type does have setae, but setae in all this group of plants are very uncertain characters.

endozonus, West Indies, Fries. No specimen exists. Guessed by Murrill to be Polyporus gilvus, probably correctly.

epigeus, Europe, Link. Specimens in his herbarium Berlin are Polyporus amorphus as now known. This shows the plant was long known before Fries named it.

erubescens, Europe, Fries. I think based on discolored Polyporus mollis and the picture cited Rostk. t. 25 I think also is discolored Polyporus mollis.

erythroporus, Europe, Orth. Unknown to me. Description suggests white Polyporus amorphus but grew on beech.

evolutus, Cuba, Berkeley = Polyporus concrescens.

farinosus, Europe, Brefeld. Compare Brefeld vol. 8 t. 7. Known to no one else. Something abnormal apparently tending towards Ptychogaster. Were it not for the different spores, the habits and appearance of the figure is like Polyporus amorphus.

fuscolutescens, Europe, Fuckel. Said to be resupimate Polyporus nodulosus.

Fendzleri, Cuba, Berkeley. Type resupinate and inderterminable.

fibrillosus, Finland, Karsten. This was published in 1859 (not 1882 as incorrectly stated) and Karsten has since substituted another plant apparently. I have not access to the original publication but in 1876 Karsten admits that it was a synonym for Polyporus vulpinus and described it as "fulvus". Polyporus vulpinus is a brown plant. In his exsiccatae he distributes an orange red plant under this name, which has been called Polyporus aurantiacus by Peck. Karsten acknowledged to Fries that his Polyporus fibrillosus was same as vulpinus, a *brown* species, and I do not know whether he has since substituted another plant or whether he mistook a bright orange red species as being brown. In either case I do not think it has much value.

Fici, Tunise, Patouillard = Polyporus Oerstedii for me. If distinct it is in having a darker crust.

fimbriporus, United States, Schweinitz = Polyporus fragilis, probably (cfr. Letter 50).

flammans, India, Berkeley. Known only from broken type at Kew. It has brown flesh and pores, no setae, and probably hyaline spores. It goes in Section 95. Its manner of growth can not be told from the fragments, but certainly not a Merismus as classed by Cooke, nor is there any application of the name "flammans" to it. It might be recognized on comparison if found again, but the best way would be to call it a "new species" and give it a suitable name.

formosissimus, South America, Spegazzini. Unknown to me except from specimens I have received so named which I think are same as Polyporus Chaffangeoni. Patouillard referred it to Polyporus resinaceus but all three are about the same thing. Bresadola has published it as same as renidens.

Friesii, Europe, Bresadola = the indurated form of Polyporus rheades which Fries called Polyporus fulvus "Scop."

fucatus, Europe, Quélet = Polyporus gilvus. There is a little cotype at Upsala. It is a remarkably rare plant in Europe (cfr. Letter 38, Note 22). It has no relation to lucidus as classed by Quélet, does not have "colored spores", has little resemblance to his figure and may not be his plant excepting as to the specimen he sent Fries. I am told by Bresadola, however, that he has Polyporus gilvus from Quélet.

fumidiceps, United States, Atkinson. Unknown to me. (Cfr. page 389.)

fusco-badia, Philippines, Bresadola (mss.) as Trametes = Polyporus Patouillardii of Brazil. I have exactly same plant from Japan, G. Yamada. I do not know that Trametes fusco-badia was ever published, though specimen sent to me was marked "cotype".

fusco-cinereus, South America, Patouillard. Unknown to me. Compared to Polyporus adustus.

fuscolutescens, Europe, Fuckel = nodulosus it is stated.

fusco-pellis, Europe, Quélet = Polyporus quercinus teste Bresadola.

fusco-velutinus, United States, Patouillard = Polyporus cuticularis.

Garckeanus, India, Hennings = Polyporus nilgherriensis which is not much of an improvement as far as the name goes.

gogolensis, New Guinea, Hennings = Polyporus immaculatus, Henning's barbarous name, which he borrowed apparently from the native dialect, fortunately does not have to be used.

Gordoni, England, Berkeley, nomen nudum and type a remmant. Probably Polyporus brumalis.

gossypinus, Europe, Léveillé. The type a little frustule from Mougeat, too poor for comment, is at Paris. Except the discoverer I believe no one had ever found it, but Berkeley found something that he called it on gorse, hence it is carried in the English text books. I know no species in Europe with "white cottony pileus" and believe it to be principally imagination.

gratus, India, Berkeley. Based on one collection which is white, thin, with allantoid spores and seems same as Polyporus floriformis of this pamphlet.

griseus, Java, Bresadola. Seems to me on comparison to be same as Polyporus ostreiformis. Griseus would be a better name for it, if it were not preoccupied.

guadalupensis, West Indies, Léveillé. Only known from the type at Paris and I think will prove in time a good species. It is quite close to Polyporus anebus which I believe does not occur in the American tropics. It has same shape, general appearance. etc., but the context is more brown, surface smoother, pore mouths darker. It must be rare for I did not note it in the abundant West Indian material at New York. Murrill refers it to Polyporus supinus, an obvious mistake. Compare micromegas.

guaitecasensis, Chile, Hennings. It has been recently referred to Berkeleyi I believe, and when I examined the type some years ago I noted that it had same flesh, pores and spores as Berkeleyi. As it was described as "dimidiate" and grew "in truncis putridis" I could not see how it could be Berkeleyi, however, unless the name is a mistake or unless the South American plant has a different habit from the North American plant, for it never grows on "trunks" in the United States. The type I saw was only fragments and nothing could be told as to how it grew, but "eine gross exampler" was stated to be in the museum which I did not find.

guttulatus, United States, Peck, change of maculatus and = alutaceus of Europe.

haematinus, India, Berk, nomen nudum and name even not found at Kew.

Halesiae, United States, Berkeley = Polyporus adustus.

Hausmanni, Europe, Fries. It is supposed to be same as hispidus. No type exists in Fries' herbarium, (it came from Tyrol). It seems from description to be hispidus excepting that Polyporus hispidus is not "pale within".

havannensis, Cuba, Berkeley. Pileus (2 x 4 x ½ cm.) with smooth reddish brown surface (Hazel). Context thin. Pores small dark, isabelline color. Known only from type at Kew, a single partial specimen. Determinations at New York are thick specimens of Polyporus subfulvus belonging to the section Petaloides, and no connection with this. The plant could be recognized I believe, on comparison with type. It will probably go in Section 95. I believe that Polyporus valenzuelianus of Montagne's determinations from Waddell, Brazil, (not type) to be this plant.

Helix, United States, Hennings as var. of volvatus. It is the usual thing.

hemileucus, Cuba, Berkeley. When described six specimens are cited which are referable to three different species, viz., Trametes cubensis, Polyporus modestus,

and Polyporus valenzuelianus. In sense of Ellis it is the latter. The description covers the former only, for neither of the latter have "white pores".

Henningsii, Europe, Bresadola. Dr. Hennings found in the old Botanical Garden at Berlin, large quantities of a Polyporus that assumed all kinds of shapes. It was pure white, thin, and had large pores. Sometimes resupinate, with thick subiculum, and rhizomorphal cords, other pleuropodial or even mesopodial. The pileate form was referred to Polyporus lacteus by Bresadola also called a new species Polyporus Hennsingsii. I have an impression that it has since been held to be a pileate form of Poria Vaillantii. (Cfr pulchella.)

hepatites, South America, Berekeley. Type rubbish.

Herbergii, Europe, Rostkovius. Among the many, mostly badly colored and inaccurately named figures that were issued in the pocket edition of the Flora of Germany (Sturm) about eighty years ago, was one named as above. The figure is rather thin, but represents apparently sessile Polyporus Schweinitzii. Fries referred it to Polyporus spongia, which is same thing, and Saccardo gives it as a synonym for Polyporus spongia and on the same page as a valid species. The incident was almost forgotten in Europe except in England where the tradition still persists. Berkeley in 1878 referred to Polyporus Herbergii a specimen in the Edinburg Fungus show, and subsequent English mycologists frequently find it, their specimens begin Polyporus Schweinitzii.

heteroclitus, England, Bolton. All that is known about it is Bolton's figure (t. 164). While it is not a good figure, I do not question it is Polyporus cristatus, a rare plant in England. Berkeley never found any plant that he referred to this figure. Fries' account was based solely on Bolton's figure. Polyporus heteroclitus is still carried in all the modern traditional works of England, though not a recent mycologist has ever found a plant that could possibly be referred to it, except Cooke who did here refer Polyporus rufescens which has not the slightest resemblance to Bolton's figure.

hinnuleus, Brazil, Berkeley. It is endorsed now as being Polyporus rheicolor. That looks right to me.

hirsutus, Juggle, Murrill. No one has known Polyporus hispidus by any other name for so many years, and Murrill's juggle was so similar, that it almost passed unnoticed.

hispidans, Australia, Cooke. Based on a single specimen, unknown to me, but badly named and badly classified by Cooke. It is isabelline now but was no doubt a thin, white plant closely related to Polyporus Spraguei as to its surface which is not "hispid" but rugulose granular. If ever found again it should be renamed. I think no one is obligated to perpetuate such misnomers.

Hobsoni, India, Berkeley = I believe Polyporus obtusus of the United States. Known only from the "type locality" though I have a specimen of Polyporus obtusus from Ceylon.

Hoehnelialus, Europe, Bresadola = Polyporus epileucus for me.

Hollandii, Africa, Massee = Polyporus colossus.

hololeucus, Australia, Kalchbrenner = Polyporus Eucalyptorum, type at Berlin. In sense of Cooke who placed it in Polystictus (sic) it is Trametes lactinea.

holosclerus, Ceylon, Berkeley = Polyporus gilvus, the reddish form called also Polyporus carneo-fulvus.

Holtermanni, Java, Saccardo, change of polymorphus (q. v.) = Polyporus zonalis probably.

homalopilus, Cuba, Saccardo. Change of omalopilus which is Polyporus gilvus.

hypocitrinus, Brazil, Berkeley. Type two little frustules from which nothing can be told.

hypococcineus, United States, Berkeley = Polyporus croceus. Berkeley published that it was same as Polyporus Pilotae which is same as Polyporus croceus. No specimen in Berkeley's herbarium but specimens can be found at Upsala and Paris of Berkeley's naming.

hypomelanus. New Zealand, Cooke. Known only from the type a single specimen. It is rigid, with a thin, reddish brown, smooth crust, hardly any context which appears to be white, and small rigid pores, the tissue pale but the mouths black. The general style of the plant is like Polyporus elegans but the specimen has no stipe but had a dorsal sessile attachment. I hardly feel that a species should be maintained on a single specimen which appears to be a sessile example of some plant of the Melanopus section.

imberbis, Europe, Bulliard. This was dug up by Quélet and stated to be same as Polyporus salignus. If it is true and we can not say that it is not, Bulliard could not do much boasting of the accuracy of his figure t. 445, f. 2, which has more resemblance a lichen than to Polyporus salignus.

impolitus, Central America, Fries. No type exists.

inamoenus, India, Montagne = Polyporus gilvus, the thick, indurated form. We use it as a convenient designation for this form but do not consider it as distinct, even as a form.

inconspicuus, South America, Miquel. Unknown to me. Alleged to be same as zonalis.

induratus, Africa, Berkeley. Type destroyed.

inflatus, United States, Ellis = Polyporus volvatus.

inonotus, Europe, Karsten = Polyporus rheades teste Bresadola. No specimen seen by me.

intercalaris, Brazil, Berkeley. Type is the merest rubbish. Endorsed now as being Polystictus versatilis, but I would as soon believe it is a new species. It is nothing.

investiens, Europe, Desmazières. He sent a specimen under this name to Persoon who endorsed it as "Bol. abietinus, De Cand. not Dicks. and Pers." It is Polyporus amorphus but shows that Persoon knew the plant before Fries named it.

Irpex, Europe, Schulzer. Changed by Fries to Polyporus Schulzeri and only known from drawing in Fries' collection and if I am not mistaken that was from Kalchbrenner. It is supposed now to be the same as obtusus of the United States.

isabellinus, United States, Schweinitz = unknown. No specimen exists.

isidioides, Africa, Berkeley = Polyporus scruposus, form of Polyporus gilvus.

Jamaicensis, Jamaica, Murrill. Based on one collection which I should refer to thick form ot Polyporus cuticularis.

Jelinekii, Tahiti, Reichards = Polyporus zonalis teste Bresadola. Type at Wien not seen by me.

Karstenii, Europe, Saccardo, change of Polyporus simulans q. v.

Keithii, England, Berkeley. Type a little piece about size of a finger nail. It is one of the two species that turn red in drying, viz., either Polyporus fragilis or small frustule of Polyporus mollis.

Kerensis, Africa, Passerini. Specimens unknown to me. Description reads like Polyporus ochroleucus which occurs in Africa.

Kymathodes, Europe, Rostkovius, t. 24 seems from the picture to be Polyporus amorphus. Fries maintained it as a species distinguished from amorphus by its gray pores, and gave a picture. Such a plant is not known now.

Laburnum, Europe, Opiz. Nomen nudum.

labyrinthicus, United States, Fries, name change of Sistotrema spongiosum of Schweinitz. No type exists either at Philadelphia, Upsala or Kew but there is no doubt in my mind that it is the curious plant now known as Polyporus obtusus. It may have been Polyporus delectans. Fries and Berkeley both had specimens and both commented on this unusual species, but neither preserved specimens.

Lawrencii, Tasmania, Berkeley = Polyporus gilvus.

laxus, Europe, Orth. Unknown to me. Reads like it might be Polyporus obtusus.

leptopilus, Java, Lévillié. No type found at Leiden. Cfr. Letter 36.

leucocreas, Australia, Cooke = Polyporus Eucalyptorum. Cooke described it as having flesh "suberose firm and tough" (sic). In his specimens the flesh is remarkable for its very soft, crumbly and fragile nature, more pronounced than in any other species known to me.

Léveillei, Africa, Patouillard = Polyporus ochroleucus, old, effete.

libocedrus, United States, Von Schrenk. This is the same as Polyporus amarus and a prior name. No type exists and we have used the latter (and later) name for reasons stated on page 330.

ligneus, Central America, Murrill as Trametes. This appears the same plant to me on comparison as Polyporus nivosellus and both I believe to be thick specimen of Polyporus Calkinsii.

Lindheimeri, Texas, Berkeley = Polyporus adustus "known only from the type locality."

Ludovicianus, United States, Patouillard = Polyporus cuticularis.

luridescens, Jamaica, Murrill. Based on old weathered and discolored specimens of Polyporus obtusus.

luteo-cinereus, Europe, Britzelmayr. Unknown. Said to have white context and pores, and colored spores. Noteworthy if true, but probably not ture. Britzelmayr was a great discoverer of things that probably do not exist.

luteiporus, Europe, Opiz. Nomen nudum.

Macouni, United States, Peck. No type exists. Given in Saccardo as a variety of Polyporus dichrous which seems to have been a bad guess unless Polyporus dichrous has changed its spore shape since. Instead of being "globose" they are "rod shape" in Polyporus dichrous.

MacOwani, Africa, Kalchbrenner = Polyporus adustus. Type at Kew.

macroporus, Java, Léveillé. No type known, nor any plant known that is "comparable to Polyporus hispidus but covered with a thick, hard scaly crust."

macroporus, Europe, Britzelmayr. Unknown. Carton not found by me.

maculatus, United States, Peck. Changed to Polyporus guttulatus but is a synonym for Polyporus alutaceus of Europe.

Marianus, Pacific Islands, Persoon. The type a single specimen in poor condition is at Paris. I believe it to be Polyporus anebus of this pamphlet and if true, a very much earlier name for it. The specimen was glued to paper so that the surface does not show. It may be the red stained form called Polyporus bicolor.

maritimus, Europe, Quélet. Unknown to any one I think. Quélet sent Fries a specimen but there is nothing left of it now. Said to have fusiform spores 10-12 mic. long. General description reads something like alutaceus excepting as to spores.

Martellii, Europe, Bresadola. A form of Polyporus resinaceus.

Mexicanus, (bis) Mexico, Patouillard. Unknown to me. Compared to lacteus.

micromegas, Cuba, Montagne. Types small and unsatisfactory are at Paris. I think they are same as Polyporus guadelupensis. They have been referred to Polyporus zonalis but are different in my opinion.

microscopicus, Java, Junghuhn. No type found by me.

microstomus, Cuba, Berkeley = Polyporus concrescens.

Mollerianus, Africa, Saccardo. This teste Bresadola is a stipitate form of Polyporus vinosus. It seems to occur in Africa only. At Kew is a specimen which is exactly Polyporus vinosus in every character excepting it is reduced to the base to a short stipe. We use the name (page 342) as a form name.

mollicomus, Europe, Britzelmayr. The description reads like Polyporus borealis. The cartoon I did not locate. His cartoon of Polyporus borealis has not the most remote resemblance to Polyporus borealis, hence you can draw your own conclusions, which is more than you can do as to most of the crude sketches of this modern European "scientist."

mollissimus, China, Patouillard. Unknown to me. Compared to Polyporus spumeus.

molluscus, Europe, Karsten. Unknown. From description appears to be the white form of Polyporus amorphus.

monochrous, Cuba, Berkeley = Polyporus capucinus. This was a mss. name for Wright No. 158 which when published was referred to Polyporus chrysites.

morosus, Europe, Kalchbrenner = Polyporus benzoinus. Specimens de Thum 713 and Rabenhorst 1605 in several museums. In Austria it is said to be "rarissime" which may explain why Kalchbrenner discovered it to be a "new species".

nauseosus, West Indies, Patouillard. Not seen by me. Said to be a white species with viscid pileus and foetid odor. Viscid Polyporus are rare. Murrill who has skimmed over Patouillard's herbarium, merely informs us that it is a "doubtful species" but what the "doubt" is about he does not state.

nidulans, Europe, Fries = Polyporus rutilans. The Friesian name has been generally used in America. Both are legal now, so you can take your choice. If Blytt's specimen of "rutilans Fries in Litt." is correct, Fries had no conception of Persoon's species, and as Persoon gave such a fine illustration of Polyporus rutilans there was not a bit of excuse for Fries to rename it.

nigro-purpurascens, United States, Schweinitz = Polyporus dichrous as announced some fifty-odd years ago.

nitidulus, Japan, Berkeley. Type little remnants from which nothing can

be told. There are also cotype remnants at Paris. I judge the plant is concrescens or close.

niveus, Java, Junghuhn. Type at Leidem is undeterminable, a white Poria, or more probably the resupinate part of some Polyporus.

niveus, Saccardo, Vol. 6, p. 118 is a lapsus for Polyporus nidulans which is Polypotus rutilans.

nivosellus, Cuba, Murrill = for me a thick specimen of Polyporus Calkinsii.

Nonkahivensis, China, Patouillard. Based on two little frustules referred recently to Polyporus lingua but not in the sense of Montagne I think.

Notarisii, Europe, Berkeley, nomen nudum. Not "described" and no specimen found by me.

obducens, British America, Berkeley. This is known from a single specimen in Hooker's herbarium from British America about eighty years ago. It is thin and reminds me of a piece of parchment paper. Recently it has been endorsed as a "prior name" for Polyporus osseus. It is quite doubtful to me, and I should not be disposed to disturb Polyporus osseus on such evidence. Fortunately, the endorsement was made after Murrill's visit to Kew, or he would without doubt have had a juggle for Polyporus osseus.

oblinitus, Mauritius, Cooke = Polyporus bicolor. It is also = Polyporus sanguinarius and the *same collection.*

obockensis, Africa, Patouillard = Polyporus colossus. As for many years the type of colossus in a jar at Upsala was unknown, the plant became fairly well known under Patouillard's name. We would be in favor of continuing it, but we are not partial to these latinized Ethiopian dialects.

obvolutus, United States, Cooke = Polyporus volvatus.

ochraceo-cinereus, Europe, Britzelmayr. So little can be told from Britzelmayr's work that it is hardly worth listing the name.

omalopilus, Cuba, Montagne (changed by Saccardo to homalopilus). It is Polyporus gilvus.

oroleucus, Java, Patouillard = Polyporus tropicus from same locality.

ostreatus, Brazil, Léveillé = Trametes cubensis. Type at Paris.

pachycheiles, United States, Ellis. Probably equals cerifluus or crispellus. These thin white species with reddish tendency are not all clear. It is not, however, semisupinus as stated, which has no reddish tendency.

pachylus, British America, Cooke. A remnant, probably resupinate part of Polystictus biformis.

pachyotis, South America, Spegazzini. Only known to me from Rev. Rick's determinations which are same for me as Polyporus Chaffangeoni.

pallescens, Europe, Fries = Polyporus fumosus it is thought. Specimens I have received from correspondents under this name are Polyporus fumosus.

pallido-cervinus, United States, Schweinitz. The little frustule in Schweinitz's herbarium is Polyporus rutilans. In the sense of Morgan it was Trametes malicola, and in the sense of Berkeley (from Cuba) it was Polystictus biformis.

pallido-micans, Europe, Britzelmayr. Another name only.

Palmarum, Cuba, Murrill = Polyporus Calkinsii.

paluster, United States, Berkeley. The type is a small specimen in very poor condition and its identity not sure but I think it is Polyporus albellus which, however, has no right to grow on pine. It has a thin but distinct crust. In sense of Murrill Polyporus paluster is Polyporus albidus a plant with quite a different surface.

paradoxus, Europe, Fries. No specimen known. The description appears to me same as Polyporus Soloniensis (cfr. Letter 42) which I am disposed to think is a lapsus of Polyporus sulphureus.

parvulus, Central America, Murrill. Based on two small specimens in Ellis' herbarium which I would refer to subsessile Polyporus lucidus as Ellis did.

pelleporus, Europe, Sowerby t. 230 = Polyporus fumosus.

pellitus, Europe, Karsten. Unknown. Reads like Polyporus osseus.

perplexus, United States, Peck. No specimen exists. Nothing known about it excepting Peck thought at the time he named it, that it was different from the common Polyporus cuticularis which he well knew at the time. Murrill who never saw it, takes it as the name for Polyporus cuticularis which is rather far fetched under these circumstances.

persicinus, United States, Berkeley. This may in time prove to be a good species, but at present is known only from the type still at Kew. It appears to have been three or four inches in diameter, sessile. The flesh was no doubt rosy at first for the name evidently refers to the color. It is *very soft and crumbly*. The pores are medium, and now fuliginous, probably changed color in drying. The plant is sessile, and grew flat against the host. Murrill's creative power in providing it with a "stem central, thick, conical, dark purple, 5 cm. long, 4-8 cm. thick" which was a pure invention and to me a source of much amusement. The plant is unknown except from this slice at Kew which came from Ravenel. I would class it in Section 81.

pertusa, Africa, Fries (as Trametes) = Polyporus gilvus cotype at Kew.

Pilotae, Unites States, Schweinitz. It has only recently been demonstrated that this is the same as Polyporus croceus of Europe.

Pini-canadensis, United States, Schweinitz. No specimen mounted in his collection. There is a little frustule at Kew which on comparison seems to be Polyporus croceus. Schweinitz' description, host, habits, color, and texture all disagree with Polyporus croceus and there is some error evidently. I know no plant to agree with Schweinitz' description.

Pini-silvestris, Europe, Allescher = Polyporus benzoinus as to description and also specimen so named.

plumbeus, West Indies, Léveillé = Polyporus zonalis. Type at Paris.

polymorphus, Europe, Rostkovius, t. 56 = Polyporus nodulosus and not a bad picture of it.

polymorphus, Java Holtermann. From the imperfect description and figure appears to be Polyporus zonalis. It was changed to Polyporus Holtermanni by Saccardo.

polytropus, Ceylon, Berkeley ("Fomes" for Cooke) = Polyporus anebus.

pseudo-igniarius, Europe, Bulliard. A very good picture of Polyporus dryadeus. The name is sometimes used as a juggle.

pseudoradiatus, South America, Patouillard = Polyporus gilvoides which is a much better name for it.

Ptychogaster, Europe, Ludwig. Ludwig states that Ptychogaster albus is a conidial form of "its own proper species" which he names as above. Fries and others think it a conidial form of Polyporus borealis. I only know that Ptychogaster albus is not rare in Sweden, that Polyporus borealis is very common in Sweden, and that "Polyporus Ptychogaster Ludwig" has never been found in Sweden by the oldest inhabitant.

puberula, United States, Berkeley (as Daedalea). The type all known is Polyporus salignus. Murrill uses it as a name change for Polyporus fragrans but there is no evidence either on the label or publication that it is fragrant.

pulchella, Europe, Saccardo. Found in a Botanical Garden. Picture is surely same thing which Hennings found so abundantly at Berlin and which was called Polyporus Henningsii (q. v.)

pura, Cuba, Berkeley (as Trametes) = Polyporus immaculatus. The plant has no suggestion of being a "Trametes".

purpureo-fuscus, United States, Cooke = Polyporus gilvus.

pusillus, Mexico, Murrill = The name being preoccupied was changed by McGinty to Polyporus pygmaeus.

Ramosii, Philippines, Murrill. Has same color, setae and spores as Polyporus licnoides. Specimens are at Berlin and I have a cotype. How it differs from licnoides I can not note.

repandus, Africa, Patouillard. Unknown to me. The description seems same as secernibilis of Ceylon.

resinosus, Europe, Schrader. It is a guess at the best but I believe it is the plant called Fomes laccatus in my Fomes pamphlet. Quélet I think had it right. Bresadola interprets it as being Fomes pinicola. Fries and in sense of American custom it is Polyporus fuscus of this pamphlet which is not "resinous" and has no resemblance to the plant that Schrader had, if either Bresadola, Quélet or myself has rightly guessed it.

reticulata, Brazil, Fries (as Auricularia) is said to be a synonym for Polyporus conchoides (cfr. Sacc, vol. 6, p. 403). I can not say to the contrary but I hardly believe it. I never looked up the specimen at Upsala if it exists.

rhinocephalus, Tasmania, Berkeley. Type all known appears to be Polyporus fumosus.

rhodophaeus, Java, Léveillé. It was misdescribed by Léveillé and not recognized by Bresadola when he worked over the Léveillé specimens. I hunted up the type from Junghuhn's labeling "Rosa mala" and found that it had been endorsed Polyporus semilaccatus.

ribicola, Europe, Karsten. Little frustules are at Berlin. I did not recognize them as anything I knew. It seems to be a Polyporus with colored context. I do not believe it is a form of rutilans however, as somebody states.

Rickii, Brazil, Patouillard, see page 357.

roseo-fuscus, Brazil, Romell = Trametes cupreo-roseus.

roseo-maculatus, Europe, Karsten. Unknown to me but from description it is the flesh colored-pore form of Polyporus amorphus.

rubiginosus, Europe, Schrader. This old vague record has been variously interpreted. Fries (late date) as a synonym for Polyporus fuscus of this pamphlet. Fries (at an early date) as Polyporus fissilis of this pamphlet. Fries' specimen at Kew is Polyporus cuticularis. Bresadola Fungus Kmet. as Fomes applanatus, which is probably correct. The "farina rubiginosa" of the pileus is no doubt the spore deposit that often mysteriously covers the top of the pileus of Fomes applanatus.

rubiginosus, Tasmania, Berkeley. This was changed by Berkeley to Polyporus Lawrencii. It is Polyporus gilvus.

rufo-albus, Africa, Bresadola (as Ptychogaster). Type is at Berlin. I think it is a normal Ganodermus close to Oerstedii. Spores are both truncate (normal) and globose (conidial) but I think the presence of conidial spores does not make it a Ptychogaster.

rufo-pictus, "Cuba" Cooke. This was one of Berkeley's left-overs, (probably I judge from the writing on the label from Ceylon) which Cooke dug up and published. It is Polyporus zonalis. Berkeley referred many specimens to Polyporus zonalis, and why he did not recognize this I can not say. Probably he did (as he did not publish it) but forgot to change his label.

rugulosus, Java, Léveillé. No type found by me at Leiden and none exists at Paris. It is considered same as Polyporus zonalis. Specimens I have noted so named are mostly Polyporus rigidus, the unzoned form of Polyporus zonalis.

Saccardoi, Europe, Cooke. Change of Polyporus sericellus (bis) which being Polyporus rufescens was not worth changing.

sanguinarius, Mauritius, Klotzsch = Polyporus bicolor. The type is at Upsala. At Kew the cotype simply "No. 13" by Klotzsch was endorsed by Berkeley "oblinitus. I have not ventured to publish it." Cooke not only ventured to publish it, but put it in Fomes (sic). The pileus has a dark red stain but nothing to suggest "blood" and Junghuhn's name bicolor is much better for it. It must not be confused with Daedalea sanguinea of the same author, which is Trametes Persoonii of the tropics. Berkeley usually employed Trametes sanguinea as the name for the latter plant. We use the name on page 338 in a very close but not exactly same sense as Klotzsch, in order to avoid inventing a new name.

Sarrazini, Europe, Schulzer. Judging from the figure of Lucand (No. 99 as vulpinus) which Schulzer states to represent his "species" the plant is probably Polystictus pubescens or velutinus.

Satpoorensis, India, De Beck. The illustration is an excellent picture of Polystictus leoninus. Those who discover "new species" of such *common things* ought not to give good pictures of them. The safest way is to "describe" them and then chuck the specimen in the waste basket.

scanicus, Europe, Fries = Polyporus adustus. Type at Kew.

Schulzeri, Europe, Fries. Change by Fries of Polyporus Irpex which is a privilege that our learned law makers only allow to Mr. Fries. Any one else it is illegal. No specimens known to Fries but the drawing is still in his collections. The plant is probably same as Polyporus obtusus.

scrobiculatus, Europe, Karsten. Description reads like radiatus. Spores read like cuticularis. Unknown what it was.

semidigitaliformis, Australia, Berkeley. Type too poor to comment.

semipileatus, United States, Peck = Polyporus semisupinus of this pamphlet.

sensibilis, N. W. United States, Murrill = Polyporus fragilis.

Sequoiae, United States, Murrill = Polyporus resinaceus.

sericellus, Ceylon, Lèveillè. No type known.

serpens, Rawak, Persoon. The types are at Paris. It is the same as anebus of this pamphlet and a very much earlier name for it. Persoon gave a figure consisting of numerous specimens growing imbricate along a stick. This is a very unusual growth and misleading as to the general habits of the plant. Persoon also called the plant Polyporus Marianus. Although a frequent plant in the East, no one has ever referred specimens to Persoon's name and the plant has generally been called by Berkeley's name Polyporus anebus. Polyporus serpens (type) has no indication of the red stain that often comes on the pileus of this species, then it becomes Polyporus bicolor.

silaceus, Europe, Wettstein. No specimen known. The description suggests Polyporus gilvus.

simulans, "Cuba," Cooke. It is a thin specimen of Polyporus fumosus. It was one of Berkeley's left overs that Cooke dug up, and supplied the locality. The original looks to me like Thwaite's label and was probably from Ceylon. At least there is nothing to connect it with "Cuba" except Cooke's endorsement. Murrill includes it in his monographic work of "American species" and finding another name simulans the same year changes it to Polyporus subsimulans.

simulans, Europe, Karsten. Unknown. Description points to Polyporus adustus. Saccardo changed simulans Karsten to Polyporus Karstenii because Berkeley had a Polyporus simulans, and then Murrill comes along and changes Polyporus simulans Berkeley to Polyporus subsimulans because Karsten has a Polyporus simulans. It seems to be a good rule. It works both ways at least.

Smallii, Florida, Murrill = Polyporus mollis.

sordidissimus, Brazil, Spegazzini. No specimen seen. Description suggests Polyporus supinus.

sordidus, United States, Cooke = Polyporus Spraguei.

Spermolepidis, New Caledonia, Patouillard = Polyporus Encalyptorum. The crust is white and was originally described us as dark as are many specimens I have seen but I think that is due to age.

spiculifer, Australia, Cooke. = Polyporus pelliculosus. It is a thicker plant and the tomentum is more strongly collected into nodules but surely the same species.

Splitgerberi, South America, Montagne = Polyporus rheicolor which is a much better name for it.

spongiosum, United States, Schweinitz. No specimen exists. Fries comments on this strange plant and changed the name to Polyporus labyrinthicus. While in absence of specimens nothing positive can be stated there is no doubt in my mind that this was the plant now known as Polyporus obtusus.

squamulosus, Africa, Bresadola, = Polyporus tephroleucus for me. I find the spores allantoid 1 x 4, not subglobose, 7 x 8 as stated, and the squamules shown on the figure Bull. Soc. Myc. France, Vol. 6, t. 5, are in faint evidence on the type.

stabulorum, China, Patouillard. Not seen by me. Reads like Polyporus Hookerii of this pamphlet.

stereiforme, South America, Hennings as form of Polyporus conchoides. It is a little thicker only than the usual plant which is all the difference.

stillativus, Europe, Britzelmayr. His crude cartoon, his name and the spores all point to it being Polyporus fuscus.

strumosus, Africa, Fries. My notes on the type are to the effect that it has dark hymenium and was too close to adustus. I have since seen at Bruxelles a specimen marked "typical" which was quite different from my idea, having *gilvous context*. Not having seen the type since I can not say.

stuposus, South America, Montagne. Material known a single half specimen less than one cm. is inadequate to base a species on. It is quite close if not same as Polyporus concrescens.

subchioneus, Philippines, Murrill. Subcaesius would have been a better name for it, as the dried plant has similar color and spores to Polyporus caesius. It is much thinner (3 mm.) than the European plant and of course we do not know that it turns blue when fresh, but on the evidence of what is known about it I should refer it to Polyporus caesius. It was distributed scantily and all I have seen are at Berlin.

subcinereus, British America, Berkeley = Polyporus adustus as acknowledged by Berkeley. Specimens so labled are found in Fries' herbarium and at Paris.

suberis, Africa, Patouillard. Unknown to me.

suberosus, Europe, Linnaeus. An old supposed synonym for Polyporus betulinus sometimes used as a juggle.

subgilvus, South America, Spegazzini = Polyporus gilvus sans "sub". Specimen at Paris.

sublilacinus, Southern United States, Ellis. Based on a single specimen from Langlois. It is same as the common Polyporus gilvus with slightly different textures, tending towards Polyporus licnoides. It is a question if Polyporus licnoides is other than a form of Polyporus gilvus and surely there is no room for a "species" between them that is based on a single specimen and "known only from the type locality."

subluteus, Canada, Ellis. I have some cotype material of this but it has never come out very distinctly as a species for me.

subpictilis, New Guinea, Hennings. Referred by Bresadola to Polyporus bicolor. The type at Berlin is quite thin to be bicolor, nor is it spotted red as bicolor typically is, still it has same color context and may be a thin form. I can not say to the contrary.

subpruinatus, Java, Bresadola = Polyporus anebus, for me.

subrubidus, Philippines, Murrill = Polyporus bicolor.

subsericellus, Europe, Karsten. Unknown.

subsimulans, Cuba, Murrill. This was merely a name change of simulans which Cooke alleged to come from Cuba, but probably came from Ceylon. Simulans being a duplicate was changed by Murrill to subsimulans where he included this Ceylonese (?) plant in his "North American" Flora. Had he called it Polyporus fumosus it would not have been far from the truth.

subtropicalis, South America, Spegazzini = Polyporus licnoides, typical in everything excepting a little thicker.

sulphuratus, Mexico, Fries = Polyporus rheicolor of this pamphlet, = also Polyporus Splitgerberi and at Upsala where the two species can be compared they are same thing. Why Fries renamed it I do not know as he had Montagne's specimen to compare. The flesh is orange yellow rather than sulphur yellow.

sulphureo-pulverulentus, Siberia, Karsten. Nothing is known about it (fortunately).

surinamensis, South America, Miquel. No type known to me though at Paris are specimens from Surinam so determined by Léveillé, and may be cotypes. They are the unzoned form of Polyporus zonalis called also by Léveillé Polyporus rigidus.

Symphyton, United States, Schweinitz. No specimen preserved. The description indicates that it was Polystictus biformis, a common American species, not otherwise accounted for in Schweinitz' record.

tamaricis, Europe, Patouillard = Polyporus rheades growing on tamarix. This tamarix form has only recently been recognized by me as being same as Polyporus rheades. Bresadola figured it as Polyporus rheades, afterwards Patouillard thought it was different and named it Polyporus tamaricis. Bresadola accepts this correction and I have always thought it was correct until I began to compare the different species with colored spores to find out the exact difference between them. Then I could not find any as to Polyporus tamaricis and Polyporus rheades at least, and I do not think there is any excepting the host.

terebrans, Cuba, Berkeley. Based on a single specimen same context and color as Polyporus fumosus and I would prefer to so refer it with doubt than to try to maintain a species on it.

testaceus, Europe, Fries. Pileus suberose, sordid testaceus, zonate within. Pores minute, white. On Poplar. Unknown to me. Evidently close to alutaceus and I suspect the frondose wood form of same thing.

Testudo, Australia, Berkeley = Polyporus durus. The type at the British Museum.

texanus, Texas, Murrill. Based on young specimen of Polyporus corruscans growing on mesquite. I have seen three collections, the type, and also from Long and Von Schrenk all on mesquite.

Thelephoroides, South America, Hooker = Polyporus conchoides, and an earlier name for it, when those sacred principles of priority get into good working order. No one has yet juggled it however.

tiliophila, United States, Murrill. Based on a thick specimen of Polyporus alutaceus.

tomentoso-quercinus, United States, Johnson. Amateur work of which no type exists but from the description no doubt that Murrill has correctly referred it to Polyporus obtusus.

Torreyi, United States, Gerard as var. of Polyporus volvatus. Based on specimens abnormally stiped.

trachodes, Java, Léveillé = Polyporus scruposus which is a form of Polyporus gilvus.

trichocoma, Tahiti, Fries. No type exists.

tristis, Europe, Persoon. No type in Persoon's herbarium. Fries thought it might be abietinus, but description seems to me to point to the large pored form of Polyporus adustus, viz., Polyporus crispus.

tristis, Europe, Roumeguére as Trametes (sic) is the common Polyporus adustus

tristis, Java, Léveillé. No type found by me = Polyporus vinosus it is stated

tumidus, Africa, Bresadola. Unknown to me. It belongs to section 103 which has now more named species than it is practical to maintain. They are all very much alike.

tyrolensis, Europe, Saccardo. Change of Polyporus Schulzeri which is probably obtusus.

ufensis, Siberia, Karsten. Unknown to me and from description can not refer it to a section even.

undulatus, United States, Schweinitz. No specimen known.

ungulatus, Australia, Berkeley. Pileus sessile ungulate, broadly attached. Surface hard, smooth, dull, no distinct crust. Slightly adustus. Flesh white, hard. Pores medium, adustus (now). Spore? globose, 4-5 mic. Known only from the type at Kew. A single collection. The pores of the specimen grew in irregular areas of growth, starting at different levels and growing different lengths, but I do not know but that is accidental in this specimen. The general nature and color of the pores are that of Polyporus fumosus and I have a feeling that it is an aberrant form.

unguliformis, Philippines, Murrill = Polyporus immaculatus, Murrill's name is the fifth that the plant has had.

unicolor, United States, Schweinitz. The specimen in Schweinitz' herbarium is Polyporus obtusus, as has long been known, but the specimen does not agree with the description and it is far more probable that Schweinitz knew Polyporus obtusus as Sistotrema spongiosum changed by Fries to Polyporus labyrinthicus.

venetus, Europe, Saccardo. Unknown. Something growing in a cave and no doubt an abnormality.

verecundus, Cooke, Berkeley = Polyporus immaculatus of same author, that is, as to the probable type. All specimens are in Cooke's writing, hence this "type" is of doubtful authority.

vermiculus, Europe, Veulliot. Seems from description to be Polyporus mollis.

virginii-Cuboni, Brazil, McGinty. Change of armeniacus because the name was preoccupied. However, as the original turns out to be the common Polyporus amorphus, the occupation was only temporary, and the change was unnecessary.

vulneratus, Java, Léveillé = Polyporus bicolor.

vulpinus, Europe, Fries = The poplar form of Polyporus rheades. For full account and history, see page 362.

Weberianus, Samoa, Bresadola = Polyporus fruticum.

Weinmanni, Europe, Fries = Polyporus mollis. There is a cotype at Kew.

ADDENDUM.

Further information regarding the following two species has come to hand since the preceding was in type.

POLYPORUS FUMIDICEPS.—I have received a specimen from Mr. L. Romell, Stockholm, having come to him from Schenectady, N. Y., and it was the first specimen I have gotten of the species. It is exactly the same as Polyporus tephroleucus to the eye, but differs in having ovate, transparent, guttulate spores, 3½ x 5. The spores of tephroleucus are allantoid, 1½ x 5. As the plants are so similar, I have gone over the spores of all my collection labeled Pol. tephroleucus and did not find any that were not correctly determined. All have allantoid spores. One must be on their guard, however, to distinguish fumidiceps from tephroleucus, for it is only a slight spore difference.

POLYPORUS AMYGDALINUS is one of the rare Southern species, known only from the old, discolored types at Kew. I was therefore particularly glad to receive a specimen which agrees with the original account, from R. P. Burke, Montgomery, Ala. We have more pleasure in getting an old species straight than we have in proposing a thousand so-called "new species."

Polyporus amygdalinus we would describe as follows:—Surface soft, dull, pale yellowish (or brownish now) with darker innate fibrils. Context soft, spongy, punky, light, pale yellow (Salmon buff). Pores and pore tissue white. Mouths small, round or irregular, white. Spores not found except small, globose, conidial spores.

This species is not in the body of this book as little could be told from the old, effete type at Kew. I would enter it in Section 87. The contrast of the white pore tissue and yellow flesh is a feature unknown to me in other species. Ravenel states it has an odor of bitter almonds when fresh, hence the name.

INDEX AND ADVERTISEMENTS.

It is customary to append to the binomial representing the plant name more or less personal names. The name of the man who is supposed to have named the plant, or some of his friends, or the collector, or the name of some individual who arranged it in the genus, and usually guessed at it, and the jugglers are very fond of writing their own names after each name they concoct. We do not believe in all of this useless bid for notoriety. We think a binomial, a binomial alone, should represent a plant name. Nor do we believe that there will be any stability or permanency in plant names unless this plan is generally adopted.

For the benefit, however, of those who think that a plant should have an appendix to its name, we itemize in our index the name that should be added to it, being the name of the author who proposed the specific name, or in a few cases (where we are concerned) of the collector. The numbers in parenthesis indicate the section to which the plant belongs.

PAGE

aduncus, Polyporus, Abbott (96)... 354
adustus, Polyporus, Willd. (88).... 328
albellus, Polyporus, Peck (80)..... 294
albidus, Polyporus, Trog (82)..... 303
albo-luteus, Polyporus, Ellis (92).. 340
alutaceus, Polyporus, Fries (81).... 301
amarus, Polyporus, Hedgcock (89). 330
Amesii, Polyporus, Lloyd (82)..... 309
amorphus, Polyporus, Fries (90).... 331
anebus, Polyporus, Berkeley (91)... 338
armeniacus, Polyporus, Berkeley (84)..... 322
aurantiacus, Polyporus, Peck (92).. 341
auriculiformis, Polyporus, Léveillé (96)..... 349
bambusinus, Polyporus, Patouillard (96)..... 351
benzoinus, Polyporus, Fries (91).... 333
Bernieri, Polyporus, Patouillard (97) 354
betulinus, Polyporus, Bulliard (80). 293
bicolor, Polyporus, Junghuhn (91).. 338
borealis, Polyporus, Fries (87)..... 326
caesius, Polyporus, Schrader (85)... 322
caespitosus, Polyporus, Murrill (82). 311
Calkinsii, Polyporus, Murrill (82).. 307
campylus, Polyporus, Berkeley (88). 329
capucinus, Polyporus, Montagne (101)..... 368
carneo-fulvus, Polyporus, Berkeley (96)..... 347
caryophyllus, Polyporus, Cooke (99) 358
cerifluus, Polyporus, Berkeley (84). 322

PAGE

Chaffangeoni, Polyporus, Patouillard (103)..... 372
cinnamomeus, Polyporus, Trog (91). 335
citreus, Polyporus, Berkeley (98)... 355
Clemensiae, Polyporus, Murrill (101)..... 368
colossus, Polyporus, Fries (102).... 368
conchoides, Polyporus, Montagne (90)..... 331
concrescens, Polyporus, Montagne (91)..... 337
cremeus, Polyporus, Bresadola (82). 311
cretaceus, Polyporus, Berkeley (81). 302
crispellus, Polyporus, Peck (84).... 321
crispus, Polyporus, Persoon (88)... 329
croceo-pallens, Polyporus, Bresadola (90)..... 331
croceus, Polyporus, Persoon (91)... 332
cubensis, Trametes, Montagne (82). 314
cupreus, Polyporus, Fries (103).... 372
cuticularis, Polyporus, Bulliard (100)..... 359
Dahlii, Polyporus, Hennings (104).. 373
decipiens, Polyporus, Berkeley (99). 355
delectans, Polyporus, Peck (87)... 325
destructor, Polyporus, Schrader (81) 303
dichrous, Polyporus, Fries (90)..... 330
Dielsii, Polyporus, Hennings (97).. 354
dryadeus, Polyporus, Persoon (96). 352
durus, Polyporus, Junghuhn (93)... 341
elatinus, Polyporus, Berkeley (80).. 295
Ellisianus, Polyporus, Murrill (82). 311

PAGE

Elmeri, Polyporus, Murrill (88).... 330
epileucus, Polyporus, Fries (82).... 309
Eucalyptorum, Polyporus, Fries (80) 297
farcta, Trametes, Rick, (96)..... 351
farinosus, Polyporus, Rick (91)..... 337
Farlowii, Polyporus, Lloyd (100)... 363
fissilis, Polyporus, Berkeley (84).... 319
flavescens, Polyporus, Montagne (80)..... 296
floriformis, Polyporus, Bresadola (83)..... 317
fragilis, Polyporus, Fries (84)..... 318
fragans, Polyporus, Peck (82)..... 309
fruticum, Polyporus, Berkeley (101). 366
fulvellus, Polyporus, Bresadola (103) 370
fulvomelleus, Polyporus, Romell (100)..... 365
fumosus, Polyporus, Persoon (82)... 308
fuscus, Polyporus, Persoon (91).... 334
galactinus, Polyporus, Berkeley (82) 306
gilvoides, Polyporus, Hennings (96). 349
gilvus, Polyporus, Schweinitz (96).. 346
glomeratus, Polyporus, Peck (99)... 356
Goethartii, Polyporus, Bresadola (95)..... 345
hispidus, Polyporus, Baglietto (100). 359
holmiensis, Polyporus, Fries (82)... 308
Hookerii, Polyporus, Lloyd (96).... 348
illicicola, Polyporus, Hennings (96) 348
immaculatus, Polyporus, Berkeley (81)..... 299
inamoenus, Polyporus, Montagne (96)..... 348
Kmetii, Polyporus, Bresadola (81).. 303
lacteus, Polyporus, Fries (83)..... 317
lapponicus, Polyporus, Romell (87). 327
leporinus, Polyporus, Fries (96).... 353
leucomallus, Polyporus, Berkeley (81)..... 300
leucospongia, Polyporus, Cooke (86) 322
licnoides, Polyporus, Montagne (96) 349
Lionnetii, Polyporus, Rolland (103). 371
Madagascarensis, Polyporus, Bathie (90)..... 331
malicolus as var. of spumeus, Polyporus, Lloyd (82)..... 305

PAGE

Marcuccianus, Polyporus, Lloyd (96)..... 348
Mariani, Polyporus, Bresadola (82). 304
melaenus, Polyporus, Léveillé (99). 358
melleofulvus, Polyporus, Romell (95)..... 345
mexicanus, Polyporus, Patouillard (103)..... 372
Mikadoi, Polyporus, Umemura (100)..... 360
minusculus, Polyporus, Boudier (81) 303
minutofruticum, Polyporus, Bathie (101)..... 366
Mollerianus, Polyporus, Saccardo (93)..... 342
mollis, Polyporus, Persoon (84).... 318
multiplicatus, Polyporus, Montagne (103)..... 371
nigrocrustosus, Polyporus, Ryan (103)..... 373
nilgheriensis, Polyporus, Montagne (99)..... 357
nivosus, Polyporus, Berkeley (82).. 310
nodulosus, Polyporus, Fries (96)... 352
obtusus, Polyporus, Berkeley (87).. 323
occidentalis, Polyporus, Murrill (87) 327
ochroleucus, Polyporus, Berkeley (82)..... 311
Oerstedii, Polyporus, Fries (103)... 370
orinocensis, Polyporus, Patouillard (80)..... 295
ostreiformis, Polyporus, Berkeley (82)..... 307
pallescens, Polyporus, Romell (84)... 321
Patouillardii, Polyporus, Rick (100). 365
pelles, Polyporus, Jarvis (87)..... 327
pelliculosus, Polyporus, Berkeley (80)..... 296
pertenuis, Polyporus, Murrill (100). 365
Phillipii, Polyporus, Bresadola (103) 372
plorans, Polyporus, Patouillard (100)..... 364
polychromus, Polyporus, Murrill (103)..... 372
portentosus, Polyporus, Berkeley (80)..... 295

PAGE
protea, Trametes, Berkeley (84).... 344
pruinatus, Polyporus, Klotzsch (91) 339
pseudofruticum, Polyporus, Torrend (95)..... 346
pubertatis, Polyporus, Yasuda (99). 358
pygmaeus, Polyporus, McGinty (99) 355
quercinus, Polyporus, Schrader (80) 298
radiatus, Polyporus, Sowerby (96).. 351
recurvatus, Polyporus, Theissen (91) 337
resinaceus, Polyporus, Boudier (103) 371
rheades, Polyporus, Persoon (100).. 360
rheicolor, Polyporus, Berkeley (98). 354
Rickii, Polyporus, Patouillard (99). 357
rigidus, Polyporus, Léveillé (91).... 337
robiniophila, Trametes, Murrill (82) 314
rugoso-sporus, Polyporus, Luja (91). 339
rutilans, Polyporus, Persoon (91)... 334
salignus, Polyporus, Persoon (82)... 308
sanguinarius, Polyporus, Klotzsch (91)..... 338
scruposus, Polyporus, Fries (96).... 347
secernibilis, Polyporus, Berkeley (88)..... 329
semilaccatus, Polyporus, Berkeley (91)..... 337
semisupinus, Polyporus, Berkeley (83)..... 316
sessilis, Polyporus, Murrill (103)... 371
setiger, Polyporus, Cooke (82)..... 311
setosus, Polyporus, Weir (96)..... 350
spadiceus, Polyporus, Berkeley (99). 358
spathulatus, Polyporus, Fries (87).. 327
Spraguei, Polyporus, Berkeley (82). 305
spumeus, Polyporus, Sowerby (82). 304
spurcus, Polyporus, Léveillé (96)... 348

PAGE
stipticus, Polyporus, Persoon (84).. 321
suaveolens, Trametes, Linnaeus (82) 314
submurinus, Polyporus, Murrill (82) 307
subolicaceus, Polyporus, Berkeley (94)..... 344
subradiatus, Polyporus, Yasuda (95) 346
substuppeus, Polyporus, Berkeley (95)..... 345
substygius, Polyporus, Berkeley (100)..... 364
supinus, Polyporus, Swartz (94)... 343
tephroleucus, Polyporus, Fries (81). 301
tephronotus, Polyporus, Berkeley (80)..... 295
tinctorius, Polyporus, Quélet (100). 365
Tokyoensis, Polyporus, Kawamura (81)..... 302
trabeus, Polyporus, Fries (81)..... 301
triqueter, Polyporus, Secretan (96). 353
tropicus, Polyporus, Junghuhn (103) 370
tuberculosus, Polyporus, Murrill (103)..... 371
undatus, Polyporus, Persoon (84)... 321
undosus, Polyporus, Peck (83)..... 318
ursinus, Polyporus, Lloyd (84)..... 319
valenzuelianus, Polyporus, Montagne (94)..... 344
versisporus, Polyporus, Yasuda (82) 312
vinosus, Polyporus, Berkeley (93).. 342
violaceus, Trametes, Janse (93).... 342
volvatus, Polyporus, Peck (82)..... 313
Wilsonii, Polyporus, Murrill (99)... 358
Zebra, Polyporus, Lloyd (91)..... 339
zonalis, Polyporus, Berkeley (91)... 336

LETTER No. 39.

February, 1912.

Report of specimens received since the publication of our last letter. We beg to thank our correspondents for continuing to send us specimens for study. There are accumulating in the museum more specimens of fungi than have ever been gotten together in one collection and we are still wanting more. It is only by constant handling that anything of value can be learned regarding species of fungi. One collection does not make a species and it is unfortunately true that the greater part of "literature" is devoted to this kind of "new species." We are not half as much interested in "new species" as we are in the old species, their characters, distribution, and variation, and it is only by abundant collections that the truth can be learned.

CHANGE OF ADDRESS.

Heretofore, we have had our foreign correspondence and specimens sent to Paris, No. 63 Rue Buffon, and the specimens sent there would reach me with some delay. Those correspondents living in countries having parcels post arrangements with the United States can send them more quickly if sent direct by parcel post, but specimens should not be sent in the open mail to the United States as many of them are lost in the mails. The English postal service is more satisfactory and specimens sent even in the open mails to our English address will reach us with very little delay. We have arranged with Mr. Skan to forward to us promptly such specimens as come to our address in his care. We will therefore ask our correspondents residing in countries where there is no parcel post with the United States to send their specimens c/o Mr. Skan. But few countries have parcels post arrangements direct with the United States.

Please use this address for all specimens not sent by parcel post:

C. G. LLOYD,
c/o Mr. S. A. Skan,
No. 37 Holmes Road,
Twickenham, England.

This address for specimens **sent by parcel post only:**

C. G. LLOYD,
224 W. Court St.,
Cincinnati, Ohio,
U. S. A.

Specimens received since last report are as follows:

AMES, FRANK H., New York:

Polystictus biformis—Polyporus rufescens. This is rather a rare species in the United States in its perfect form. The abortive form (Polyporus distortus) is far more common.—Stereum tuberculosum although this has a reflexed pileus, and tuberculosum is given as a resupinate species. The

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JAN 2 0 1942

hymenium turns red on being wet and scraped. The spores are 3 x 5, much smaller than those of the similar Stereum rugosum (which are 5 x 10). I am very glad to get these specimens.—Polyporus Spraguei—Thelephora terrestris—Fomes connatus—Polyporus cuticularis—Polyporus adustus—Nectria cinnabarina or a related species—Polyporus albellus—Polystictus conchifer—Daedalea confragosa (trametoid form)—Daedalea? unknown to me.—Polyporus dichrous—Trogia crispa—Lycoperdon gemmatum—Stereum sericeum—Crucibulum vulgare—Cyathus stercoreus—"Xylaria" flabelliformis Schw. It passes as a "conidial form" of Xylaria corniformis but I think it has nothing to do with any "Xylaria."—Polyporus salignus—Hydnum ochraceum—Stereum (Hymenochaete) tabacinum—Polyporus resinosus—Daedalea unicolor—Lenzites velutina—Irpex cinnamomeus—Polyporus albellus—Guepinia spathulata—Phlebia radiata—Fomes igniarius. The smooth form called Fomes nigricans. This collection has abundant setae on the hymenium—Polyporus adustus—Fomes rimosus—Fomes Everhardii—Daedalea confragosa or Lenzites corrugatus which is only a thin form of the same thing.—Hydnum ferrugineum—Polyporus pubescens, (almost the same thing as velutinus).—Polystictus perennis—Polyporus Curtisii—Polyporus albellus—Polyporus gilvus—Merulius tremellosus—Polyporus radiatus—Polyporus cuticularis—Polyporus Spraguei (?)—Phallus duplicatus—Polyporus Schweinitzii—Daldinea concentrica.

BALLOU, W. H., New York:

Polyporus albellus—Lenzites saepiaria with daedaloid hymenium.—Hygrophorus Ravenelii—Daedalea juniperina. "The entire stump of a Red Cedar was honeycombed with these big pore tubes, extending vertically up the stump for six inches."

BEARDSLEE, H. C., North Carolina:

Cordyceps militaris. Growing on a cocoon. This is our most frequent species, but I have never before seen it except growing from chrysalides.—Geaster saccatus—Geaster rufescens.

BONHAM, MISS ELLEN IDA, Australia:

Stereum hirsutum—Polystictus cinnabarinus—Polyporus ochroleucus (fine specimens)—Polystictus (Sp.).

BLACKFORD, MRS. E. B., Massachusetts:

Polyporus radiatus.

BRENCKLE, DR. J. F., North Dakota:

Polystictus hirsutus—Fomes ribis. On Symphoricarpus. In the East it occurs only on the Ribes species, but in the West it occurs also on Symphoricarpus.—Fomes leucophaeus—Polyporus adustus, aberrant form more imbricate and indurated than usual.—Stereum purpureum?

BUTIGNOT, DR., Switzerland:

Geaster fimbriatus.

BURNHAM, STEWART H., New York:

Polyporus picipes—Polyporus delectans.

CHEEL, EDWIN, Australia:

Polyporus rhipidium "fairly common in this state."—Polystictus sanguineus. Thicker than ordinary and approaches Polyporus cinnabarinus —Polystictus versicolor, pale form.—Hexagona rigida, fine specimens.—Polyporus luteo-olivaceus.—Merulius umbrinus.

COOK, MEL. T., New Jersey:

Scleroderma Geaster.

CRADWICK, WM., Jamaica:

Polystictus maximus. Same as type in Montagne's herbarium.—Polystictus (sp.). It has the surface and context of hirsutus and the pores of occidentalis.—Panus (Sp.)—Trametes hydnoides—Fomes fasciatus.

DEARNESS, JOHN, Ontario:

Hymenochaete corrugata?—Peniophora incarnata?—Valsaria cincta (as named).—Daedalea confragosa—Thelephora pedicellatum—Pleurotus nidulans—Solenia anomala—Exidia glandulosa.

DUTHIE, MISS A. V., Transvaal:

Schizophyllum commune—Thelephora terrestris—Polystictus sanguineus—Xylaria Sp.—Polyporus dichrous—Stereum hirsutum—Stereum (Sp.)—Polyporus hispidus—Stereum lobatum—Lentinus (Sp.)—Polystictus versicolor. Typical.

EVANS, I. B., Pole, Africa:

Auricularia delicata (Fries, as Laschia). This was named from South Africa as Laschia delicata Fr. and is readily the type of the genus Laschia. This genus at the present day, however, has acquired quite a different signification.—Hexagona Pobeguini. (Cfr. Myc. Notes, p. 500.) This species only known from Africa is recognized by the brown, velutinate pores (also pileus when young).—Polystictus flavus (cfr. Myc. Notes, p. 450). This is a common irpicoid Polystictus of the tropics and can be called either Irpex or Polystictus.—Polyporus gilvus. Very common in Africa, also United States. Absent from Europe.—Schizophyllum commune —Polystictus sanguineus—Polystictus iodinus—Polystictus lanatus. This is only a more yellow form of Polystictus occidentalis.—Polystictus zonatus. Almost typical as to color with the European form.—Polystictus versicolor —Polystictus velutinus—Polystictus hirsutus. *White form* which does not occur in Europe.—Fomes Haskarlii (=Fomes Korthalsii Bres. not Lev.) (=? Fomes calcitratus Berk.) (=? Fomes senex Mont. Juan Fernandez not Cuba.)—Cyathus vernicosus. Has smaller and more tapering cups but otherwise same as ordinary form. Spores are 8 x 12.—Stereum hirsutum—Stereum versicolor as always determined by Fries and Berkeley.—Lycoperdon pusillum (or very close).—Lycoperdon endotephrum—Stereum spadiceum—Polyporus gilvus. The form with a rough surface is Polyporus scruposus Fr. but it is hardly a good form of gilvus.—Fomes rimosus. This has markedly smaller pores than the type form from Australia, but with the same color, surface, *spores*, hyphae, I should feel like referring it to this species (Cfr. Note 26).—Fomes (Ganodermus) australis—Trametes

(or Polystictus) obstinatus—Guepinia spathulata—Polyporus luteo-olivaceus.

HASSLER, DR. F. A., California:

Battarrea Stevenii. A fine large specimen. The species "Stevenii" rests only on its large size, for there is no real difference between any species of Battarrea. Underwood discovered this to be a "new species" which he called Battarrea laciniata but this was in line with many of his "discoveries."

HIBBARD, MISS A., Massachusetts:

Cordyceps capitata. A nice collection.

JERRUCK, D. F. O., India:

This was a very liberal collection of twenty or more large specimens collected in various localities, and evidently well representing the common forms in this region. When we sort them out, however, we find they are all referable to two species.—Polyporus (Ganodermus) Oerstedii. (See Note 25).—Fomes Pappianus, (See Note 26).

LAING, R. M., New Zealand:

Calvatia lilacina. Sterile base.—Panus (Sp.).

LANE, ROSE, California:

Polysaccum pisocarpium—Polystictus versicolor.

LIND, DR. J., Denmark:

Poria Friesiana. No doubt Bresadola's determination.—Poria obliqua.

MAHALUXMIVALA, C. D., Bombay:

Polyporus lucidus, various forms. (See Note 27.)

MacCLEMENT, W. T., Ontario:

Polystictus versicolor—Fomes leucophaeus—Thelephora terrestris —Polyporus pubescens—Trametes Abietis. The pores of this collection are not as large as they should be, hence to this extent doubtful.—Daedalea unicolor—Stereum purpureum—Hypoxylon coccineum—Polystictus abietinus —Schizophyllum commune—Polyporus pubescens (?) surely same thing but more "brown" than pubescens should be.

MIGNAULT, REV. JOSEPH, Canada:

Polyporus lucidus—Polystictus perennis—Polystictus conchifer.

MORRIS, GEO. A., Massachusetts:

Lenzites saepiaria—Fomes fomentarius—Polystictus hirsutus—Fomes leucophaeus—Polystictus cinnabarinus—Fomes connatus—Stereum complicatum—Polystictus circinatus—Polyporus perplexus (See note 24).

NELSON, N. L. T., Iowa:

Polystictus hirsutus—Lycoperdon gemmatum—Fomes leucophaeus —Polystictus biformis—Calvatia lilacina—Polystictus versicolor (with adustus pores).

O'CONNOR, C. A., Mauritius:

Hexagona mirabilis. (Cfr. Hexagona Synopsis, p. 38, fig. 329). This is exactly the same as my Samoan collection and the only other collection known to me.—Favolus princeps or very close, but I think worthy of a separate name. It is characterized by very peculiar, branched cystidia on the hymenium, in this species so large they can be seen with the naked eye. This species has the surface of the pileus scurfy with similar bodies which Favolus princeps does not have.—Tremella fusiformis. This seems to be the most common white Tremella of the tropics.—Fomes hornodermius —Daldinia concentrica—Polyporus arcularius—Polystictus flavus—Stereum (Sp).

PAUL, J. T., Australia:

Lycoperdon pratense—Polysaccum pisocarpium—Mycenastrum Corium—Polystictus cinnabarinus—Sclerotium of Polyporus Mylittae known as "native bread" in Australia.—Thelephora terrestris—Strobilomyces pallida.

PECKOLT, GUSTAV, Brazil:

Fomes fasciatus—Hexagona variegata—Polystictus sanguineus— Schizophyllum commune—Polyporus plebius (provisional see Note 23).— Polyporus auriscalpium—Polyporus (Amaurodermus) Chaperi. The second collection known, the only other being in the museum at Paris and collected in Cuba many years ago. (See Note 35.)—Polyporus. A thin polystictus form of Polyporus gilvus. I presume it has a special name but I do not know it.

RATNAGAR, S. N., India:

Fomes unknown to me. (See Note 28.)—Polyporus (Ganodermus) Oerstedii. (See Note 25.)—Polyporus Curtisii. With the same surface, context, spores we would so refer this specimen, although it is mesopodial with a short, thick stem. Curtisii in the Southern United States has usually a lateral stem, as the closely related lucidus has. Spores very abundant in this specimen.—Podaxon calyptratus (?) (See Note 29).— Phellorina inquinans. (See Note 30.)—Polyporus lucidus, very young.— Lentinus (Sp.)

RIDLEY, H. N., Straits Settlement:

Polystictus sanguineus.—Polystictus semisanguineus (See Note 31)-- Trametes expallens. As I believe from the description, although as no type exists it is of course doubtful. It answers, however, every word of Fries' description.

RICK, REV. J., Brazil:

Lenzites repanda—Auricularia polytricha—Hirneola auricula-Judae --Polyporus plebius (prov. See Note 23)—Polyporus. (Sp.)—Poly-

stictus pinsitus—Polyporus licnoides, not typical but close—Polystictus caperatus, typical—Polyporus gilvus with abnormal, faveolate hymenium.—Favolus Brasiliensis—Lenzites betulina. The tropical plant while unquestionably the same species differs a little in general aspect from the temperate region forms.—Polystictus hirsutulus—Polystictus pinsitus—Irpex coriaceus. (Cfr. Note 36).—Fomes australis—Polyporus gilvus—Polyporus brumalis (young)—Polyporus versicolor, (pale.)—Fomes leucophaeus (abnormally stipitate, sent as amboinensis.)

SAHNI, B., India:

Fomes fomentarius—Polyporus squamosus—Fomes ulmarius. All three are European species, and exactly the same.

TEPPER, J. G. O., South Australia:

Calvatia rufoflavum—Scleroderma flavidum—Lycoperdon pratense—Geoglossum ? ?—Mycelial mass of Polyporus basilapidoides?

UMEMURA, JINTARO, Japan:

Polyporus ochroleucus. (On Prunus.) This is a Polyporus not Trametes as found in Saccardo.—Lenzites furcata. This is very close to Lenzites betulina but has *narrow* dichotomous gills.—Polystictus pergamenus (on Prunus).—Polystictus pterygodes—Cyclomyces fuscus (on Quercus).—Polyporus (on Quercus) *very close* to dryadeus of Europe, same peculiar, shiny context color. Spores subglobose 10 x 12 colored. Setae rare, with a swollen base, acute. These are about same "structural" characters as those of dryadeus but the Japanese plant has a smooth but distinct thin crust which the European species does not have.—Polyporus (on Diospyros) (unknown to me).—Stereum spadiceum. Hymenium reddens on being bruised.—Polystictus with a tawny, zonate, upper surface very similar to that of Polystictus zonatus, but with isabelline context and pores. The pores are very minute and fine.—Trametes (on Cryptomeria). Unnamed I think. Color surface, context and pores pale rose.—Fomes (on Quercus). Unknown to me but very distinct. Surface rugulose zoned, black. Context ferrugineous. Annual layers *very distinct* narrow about 8 to an inch with a *very* thin context layer between them. Pores minute. Spores colored, subglobose 3½ x 4. Setae *slender*. This is a species very distinct from any known to me.—Polystictus. This seems to be polyporoid when young, but when old the pores are lacerate with a lamellate arrangement and then it is a better Irpex. The teeth have hyaline cystidia. It is unknown to me.—Polyporus (on Albizzia). Unknown to me.

WEIS, D. W., Massachusetts:

Panus stipticus—Corticium (?)—Daedalea confragosa—Polystictus pergamenus (very?)—Irpex cinnamomeus—Irpex lacteus—Stereum sericeum—Stereum complicatum—Lenzites betulina—Polystictus versicolor.

WHETSTONE, DR. M. S., Minnesota:

Pterula densissima. (See Note 32).—Polyporus gilvus—Daedalea unicolor—Guepinia elegans—Merulius tremellosus—Tylostoma campestris—Polyporus gilvus—Helvella elastica—Xylaria polymorphum—Stereum di-

aphanum (very rare)—Thelephora Schweinitzii—Geaster hygrometricus—Favolus europaeus—Stereum fasciatum—Irpex lacteus—Polystictus pergamenus—Lentodium squamulosum—Trametes hispida—Stereum spadiceum—Lenzites betulina—Polyporus brumalis—Polyporus picipes—Polystictus perennis—Polyporus adustus—Lenzites saepiaria—Fuligo septica—Hydnum adustum, very doubtful. I do not know it. This reference is only put forth as a possible solution.—Polyporus induratus not published.—Daldinia vernicosa (young).—Polyporus unknown to me, white. Spores 1½ x 5. Close to albellus but different surface.—Polyporus. Unnamed I think. Section Merismus, white, thin, with minute pores. Spores 3 x 4 guttulate.—Leotia viscosa.—Tremella which has been called Tremella foliacea in American mycology but not the same I think as the European species.

NOTE 24. Polyporus perplexus. The rediscovery of this species by Mr. George E. Morris, Waltham, Mass., is of great interest. It answers to the description exactly, and there is no type in Peck's collection (cfr. Myc. Notes, p. 378). This is the first specimen I have seen. It has quite peculiar microscopic characters not noted by Peck, Hyphae slender, deep colored. *Setae large, curved,* deep colored. Hymenial elements white. Spores hyaline, 4-5 oval, smooth. As we have previously stated, perplexus in the sense of Murrill was based on a guess that in the light of the evidence (cfr. Myc. Notes, p. 378), has no probability even of truth.

NOTE 25. Polyporus (Ganodermus) Oerstedii. Abundant specimens from D. F. O. Jerruck, Karachi, India, correspond to Polyporus lucidus of Europe, has the same laccate crust, context, context color, annual pores, spores, etc., and I question if a piece of the pileus could be distinguished from a piece of lucidus. It never has a long, laccate stem as the form of lucidus of Europe, although some of the specimens do have a short stem. Nor is the resinous surface so strongly shiny as the typical lucidus of Europe. I do not believe that the type form of lucidus in temperate regions is ever sessile, and the most of these specimens are not only sessile but imbricate dimidiate. Hence while Polyporus Oerstedii might be held as a form of lucidus, I think it is entitled to a distinct name. This (or a similar) sessile form occurs (rarely) in Europe, when it is called Polyporus resinaceus, and in the United States where it has lately been named Ganodermus sessile. Polyporus Oerstedii has lately been published as a synonym for Fomes australis, but that in my opinion is a gross error, for it is not a "Fomes" and has quite a different (laccate) crust.

NOTE 26. Fomes Pappianus received from D. F. O. Jerruck, Karachi, India, and determined by Bresadola. When I received it I was inclined to refer it to rimosus as it is very similar in all its leading characters. The pores of Pappianus however are longer, the spores slightly larger and the crust smoother than in Fomes rimosus, but in all of its essential characters it is very close to Fomes rimosus in its type form (from Mauritius) (doubtful from Australia). Fomes rimosus is a very common plant on the locust tree in the United States and agrees in every character with the type in Berkeley's herbarium from Mauritius. It has been known, and correctly so, in American mycology always as Fomes rimosus excepting Berkeley's and Schweinitz's early determination, where it was referred to Fomes igniarius. Mr. Murrill (naturally) discovered it as a "new species," calling it Fomes Robiniae, which would have been a good name for our American plant. I find it very rarely in Samoa and the Samoan plant can not be told from the American plant, either by macroscopic or microscopic characters.

NOTE 27. Polyporus lucidus. These collections from C. D. Mahaluxmivala, Municipal Gardens, Bombay, ten in number, illustrate the difficulties in referring the polyporoid collections to "species." The collector no doubt took them all for different species, and yet for me they are but different conditions and forms of the same thing. While we refer them to Polyporus lucidus of Europe, for all have the same texture spores, context color, and *essential* characters, they differ in characters that are variable. The surface is laccate to a more or less degree. Some have the same surface exactly as the European form. Others the color is more yellow and not so strongly laccate. These correspond to Polyporus Curtisii of our Southern United States. As to stipes none are exactly the same as the European form. All are shorter and more obese. Two of the collections are almost sessile. One could well be referred to Polyporus Oerstedii. What should be done with the tropical forms of Polyporus lucidus is a question. Each specimen could be called a "new species" for each differs from the other in some respects, and these "new species" would have just as much value as many that are proposed on single collections or as they say "known only from the type locality."

NOTE 28. Fomes unknown to me and I presume unnamed, sent in by S. N. Ratnagar, Hyderabad, India. It seems a good species and is unknown to me. It is very close to Fomes robustus of Europe as to context color, bright cinnamon, and the spores hyaline, globose 5-6 mic. It differs in having no crust, the surface being concolorous, also the

peculiar *narrow-concentric-zonate* context. This specimen was sent to me labeled Fomes Pappianus but it is quite different from that species (as named for me by the author) in essential characters.

NOTE 29. Podaxon calyptratus (?) from S. N. Ratnagar, Hyderabad, India. The species of Podaxon have never been worked out historically. Several of them reached Europe in very early days and their identity rests on old specimens in out of the way museums. Exactly the same plant that Mr. Ratnagar sends is found at Kew "collected Rawni Pindee Aitchison, Aug., 1878. Eaten by the natives," and referred to Podaxon calyptratus Fr. This specimen is cited in Saccardo "Punjab Aitchison." Fries' name was based on Bosc's old figure from Senegal and its identity with this Indian plant is of course doubtful. The type of Podaxon calyptratus if it exists is probably at Padua, Italy, but no one has seen it. Mr. Ratnagar sends the specimen as "an edible fungus found on the banks of canals and in cultivation."

NOTE 30. Phellorina inquinans, from S. N. Ratnagar, Hyderabad, India. The genus Phellorina may be considered as a single species. Collections vary as to the length of the stipe and the scaliness of the peridium, but all have the same gleba and spores. The genus is rare in most countries, most common in Mediterranean regions. It affects sandy soil. Aitchison on the Afghanistan Boundary Commission reports it "Fungus profuse everywhere, some being large to a foot in height." His specimens were named "Xylopodium Aitchisoni," but the specimens at Kew are the same species as Phellorina Delastrei of Algeria and only a more scaly form of the plant Mr. Ratnagar sends.

NOTE 31. Polystictus semisanguineus as I shall call a specimen received with Polystictus sanguineus from H. N. Ridley, Singapore, Straits Settlements. While it may be a form of the common sanguineus, it is very different from the ordinary form and of the hundreds of specimens of sanguineus I have seen, I never saw one like it before. The color is not deep red, but *pale mottled red*. It is thicker than sanguineus and the strongest difference is the surface is not smooth like sanguineus, but soft, pubescent and feels like chamois skin. I think it worthy of a name.

NOTE 32. Pterula densissima Berkeley I presume. From Dr. M. S. Whetstone, Minneapolis, Minn. I have heretofore referred our American plant to Pterula multifida Fr. but since becoming acquainted with the European plant in Sweden I think our American plant is distinct.

NOTE 33. We have received from Mr. E. B. Sterling, Trenton, N. J., very large specimens of Polyporus Berkeleyi. These specimens weigh respectively 19 and 24 lbs. Polyporus Berkeleyi is the largest species of Polyporus we have in the United States, and attains a greater size than the similar plant, Polyporus giganteus, notwithstanding the name of the latter.

Owing to its large size it is strange to me that it is not referred by Mr. Murrill to Polyporus colossus. It has as much resemblance to Polyporus colossus as the plant that he has so referred, as neither of them have any resemblance to it whatever, except in being "large." This process of guessing at the identity of a plant from the name ordinarily has not much to commend it, but after visiting the museum where the type is preserved, then to come home and make such a "break" only illustrates the "scientific" value of the superficial work that is done on these cursory visits.

Mr. Sterling also sends me two very fine photographs of the species as it grows, but they are about the same as the photographs that we have previously published (Fig. 362) on this species in Myc. Notes Pol., Issue p. 37.

NOTE 34. Polyporus auriscalpium (Amaurodermus). A nice collection has been received from Gustav Peckolt, Rio, Brazil. It agrees exactly with Persoon's original specimen at Paris. It grows from a long straight root-stalk. Most but not all specimens are "Auriscalpium" in shape. Some are almost mesopodial. In fact, it may develop in time that Polyporus omphalodes of Berkeley is the same thing.

NOTE 35. Polyporus Chaperi (Amaurodermus). A specimen received from G. Peckolt is the second specimen known. This is a finer specimen than the type at Paris. The surface is rugulose zoned, but glabrous. Color reddish brown. Stipe mat with sterile branches as in the type. This species has a structure that I did not note when I examined the type. The fibrous tissue of the tubes consists of long, deeply colored, pointed hyphae, the ends often projecting into the tubes and appearing like colored setae of other species. I have noted a similar structure in Fomes pachyphloeus, but if this is a character of the type specimen of Polyporus Chaperi (and it must be if this is correctly named), I did not notice it. Spores are globose, smooth, pale colored, 10-12 mic.

NOTE 36. Irpex coriaceus is a plant of the American tropics said to have several synonyms. The teeth have a peculiar greenish olive color by which it is known at once. Rev. Rick distributes it as Poria portoricensis, which was named, I think, from the description, as I have never found any type at Upsala, though there may be a cotype at Berlin. Hydnum trachyodon, as guessed in Saccardo, is the same thing (type at Paris). The plant is best known from Berkeley's naming, from the Southern United States where it is quite frequent.

LETTER No. 39

FUNGI OF MADAGASCAR.

We have received from Monsieur Henri Perrier de le Bathie, Madagascar, a very fine collection of fungi that we think worthy of a separate letter. The collection embraces more specimens than we have noted in the museums of Europe and we presume more than has heretofore been sent in from Madagascar. It includes two striking novelties, namely: Fomes perlevis and Fomes sculpturatus. I would determine the plants as follows:

Hirneola polytricha. This in my opinion, is only the tropical form for the "Jew's ear" Hirneola auricula - Judae of the temperate world.

Cyclomyces fuscus. Peculiar plant with concentric gills. Cfr. Myc. Notes No. 36, page 487.

Hexagona mirabilis. I recently received this plant from Mr. O'Connor, Mauritius. but otherwise it is only known to me from the original station Samoa.

Polystictus affinis. Perfectly smooth and in color approaching carneo-niger.

Trametes hystrix. Common and only occurs in Africa. Close to Trametes hydnoides of the American tropics but has constantly larger pores. However, many specimens of it are in the museums, misnamed Trametes hydnoides (which does not occur in Africa).

Polystictus vinosus. Readily known by its peculiar vinous (atro-purpureus) color.

Polyporus sacer. (Cfr. Stipitate Polyporoids page 122, fig. 420). A peculiar African species only.

Polystictus Persoonii (form rubriporis) without question a form of Polystictus Persoonii, with the (red) pore mouths concolorous with the pileus. I have seen many collections of this tropical species but never before one that did not have white pore mouths. The context of this collection is white as ordinary.

Polystictus leoninus. (Cfr. Synopsis Funalis page 64). A peculiar and common plant in the East and Africa.

Polystictus sanguineus. The common red species of the tropical world.

Lenzites repanda, also common throughout the tropical world.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

Lentinus cirrhosus as illustrated Req. Afz. t. x. f. 21.

Polystictus occidentalis var. lanatus. The African plant received by me from several correspondents, has a deeper yellow context than those from other tropical countries. It was named Polyporus lanatus by Fries.

Polyporus aurcularius. Same as our American plant.

Fomes nigro-laccatus. For me a form of the common Fomes australis of the tropics, with a slightly laccate crust.

Hexagona umbrinella. (cfr. Synopsis Hexagona p. 26), very close to Hexagona subtenuis but with larger pores.

Cladoderris elegans. This is well named for it is the best marked species that grows in the tropics.

Polystictus cryptomereriae. This seems to be the Eastern form, if not same species, as Polystictus pinsitus of American tropics.

Fomes pseudosenex. Applanate, thin, with a rimose black crust. Context color and pore mouths snuff brown. (303-). Pores very minute, hardly visible to the eye. Annual layers, narrow, about 5 to cm. Setae none. Spores globose, deep colored, 4½ mic. This is an extremely hard species, brittle, and heavy, which was named (or rather misnamed) from the American tropics. It has little relation to Fomes senex though confused with it by the author (Montagne).

Fomes perlevis. Sessile, ungulate, type specimen 10 x 6 inches. Color of context lateritius red. (Reddish Terra Cotta 100-4), ligneous but soft and light. Surface Dark Fawn (307- 3). mat, with no distinct crust, soft, easily indented. Pores medium, round, the context lateritius red but the mouths and hymenial layer pale or white. Setae none. Hyphae pale red. Spores hyaline or faintly colored, 4 - 4½ x 5½ - 6, smooth. This is a most peculiar species, not to be confused with any other. The context is red but the white pore mouths and brown surface give no indication of it in an uncut specimen. The pores are indistinctly stratified. It is remarkable among all other Fomes by its light weight, and soft spongy surface, but there is no indication of a dual layer such as is found in some species. Type specimen from Henri Perrier de la Bathie, Madagascar.

Fomes sculpturatus. Applanate, sessile, (5 x 3 x 1 inch.) Context hard, ligneous, pale almost white. Surface chocolate brown (343- 2) with a thin crust, mat, hard, rugulose. Pores minute, hard, brown, concolorous with the crust, and contrasting with the pale context. Setae none. Basidial spores not found but conidial spores abundant and quite peculiar. They are obovate, attached by the broad end,

large, 12 x 20 mic. brown, and sculptured. In general appearance and color this resembles Polyporus resinosus (of Fries) but is quite different in its ligneous structure and peculiar conidial spores. The pores are not distinctly stratified in the type specimen, but we place it in Fomes on account of its evidently woody, perennial nature. Type specimen from Henri Perrier de la Bathie, Madagascar.

Polyporus licnoides. Not typically marked as the South American form, but evidently the same species.

Polyporus gilvus same as in United States.

Polyporus carneo-fulvus. This is quite close to gilvus except the reddish tinge of the pileus. The pore mouths have the same soft feel as those of Fomes Haskarlii.

Polyporus. An unnamed species belonging to a new Section (11 c) of Lignosus. It has gilvous context and pale yellow spores (globose, apiculate, 8 mic.) In general habits and stipe attachments it resembles some Ganodermus (as Emini) but in context and spores it is quite distinct from all others. Unfortunately but one little specimen was sent and I should not like to name it from this material.

Fomes pectinatus(?)Same macroscopically but spores are 3½ x 4, colored. Setae none. I have never found spores in the types of pectinatus.

Ganodermus mangiferae. This species has a peculiar color by by which may it be recognized.

Stereum lobatum, as the luxuriant, tropical form of Stereum versicolor is called.

Stereum. (Section Lloydiella). Curious in the way it contracts in drying. Hymenium red on bruising.

Stereum. Species unknown to me. Resembling the common Stereum lobatum, and strongly lobed. It is allied to spadiceum however, as the hymenium turns red on being bruised. Cystidia none.

Mycenastrum Corium. Five large specimens of this very peculiar puff ball. Exactly the same as from Australia, Europe and America.

Polystictus xanthopus, (cfr. Synopsis Section Microporus page 50) a characteristic plant of Africa and the East.

Fomes Pappianus, This is distinguished from Fomes rimosus (which also grows in South Africa,) by its distinctly larger pores.

Also a Fomes, two Polystictus and two Lentinus unknown to me.

These specimens were sent to my Paris address, forwarded to me in Cincinnati and received by me in May, 1912.

Cincinnati, O., July, 1912 C. G. Lloyd.

NOTE 24. Lenzites trabea. We finally adopt this name for the common species in the United States which we have heretofore called Lenzites protracta. (Cfr. Note 1). While common in the United States, it is rather rare in Europe and it is difficult to find a satisfactory name for the European species. Peck (of course) discovered it as a "new species" and named it Lenzites vialis. These European plants discovered to be "new species" in America, do not appeal to us very strongly. I have until recently thought it the plant Fries illustrates as Trametes protracta and Trametes protracta is so given as a synonym in Bresadola's writings.

Mr. Romell sends me a quite different plant, namely, the Trametes form of Lenzites sepiaria under the name protracta, and on looking into Fries' writings and illustrations again I am satisfied that he is correct. Orth distributed the plant (I think in Rabenhorst's exsiccatae) as Trametes trabea, a name which is attributed to Persoon and this is the name used by Bresadola, I do not believe that this was Persoon's plant at all according to his description, for he describes gills as "reddish" and compares it to Daedalea quercina. I do not think he would have done so if he had this plant in view. There is no specimen in Persoon's herbarium. As we cannot consistently continue to call it Lenzites protracta we shall in the future call it Lenzites trabea, though we think that Orth's name (if any name) should be written after it. There is no evidence whatever that it is Lenzites trabea in the sense of Persoon.

NOTE 25. Polystictus rubidus. We recently received a nice collection of this species from Java from Mr. Mousset and we have it from other Java correspondents. We are beginning to believe that this must be the original Polyporus carneus (Nees) which came from Java, although I think no one has seen the type. Berkeley called a closely related plant in America, Polyporus carneus and this name is now well established in American mycology. It has been stated that the American plant is a synonym for Fomes roseus of Europe but I think it will appeal to anyone who has worked with both plants as a mistake. I think the best way out of the muddle will be to continue to call the American plant Polyporus carneus and the Javanese plant Polyporus rubidus. Both are very closely related to Polyporus Feei of Brazil.

NOTE 26. Polyporus subolivaceus. I think this is the only valid name we can apply to this common, tropical American plant that has been so badly confused. Berkeley named one collection Polyporus subolivaceus (compiled in Saccardo as Fomes, which it is not) though Berkeley usually called it Polyporus plebius var. cubensis. There is not the slightest evidence or probability that it had anything to do with Polyporus plebius of New Zealand. Ellis referred it to Polyporus hemileucus which is correct in part, for two or three different species (including this one) are included in Polyporus hemileucus.

Murrill with his date dictionary, referred it to Polyporus supinus. The only specimen of Polyporus supinus (type) is in the British Museum, a very poor specimen and it is doubtful what it is. I have examined it very carefully and doubt if it is this plant.

At any rate Mr. Murrill's opinion was probably only a guess, for while he visited London and wrote many opinions on the identity of Schwartz's specimens in the British Museum, he seems to have done so by the inductive method. Shortly after he had published on this subject each of the three attendants in the mycological department of the British Museum told me that to the best of their belief he had never visited the mycological department the Museum.

NOTE 27. Polyporus squamosus. Mr. Ballou informs us that he has found this species very abundant around New York growing on dead elms It is a rather rare plant in the United States, though unfortunatly too common in Europe. It is there quite a serious disease on shade trees.

NOTE 28. Ganodermus lucidus "tropical form" This puzzling plant to which we have referred in a previous note is so variable that probably several "species" can be based on it. We get similar plants from several collectors and never from the tropics exactly the same as from Europe. Two collections (Dr. Anna Brockes, Brazil and J. H. Irami, India) have the **context marked with narrow distinct zones,** a feature never in the temperate region plant.

LETTER No. 40.

List of specimens received since last report. My best thanks are extended to those who continue to send me specimens.

New Species.—While I think there are very few "new species" in Europe or the United States, they are constantly being received by me from foreign countries. I do not claim to be able to recognize them, however, excepting in the Gastromycetes and in those sections of Polyporaceae with which I have been working for the past six or eight years with a view to learning the *old* species. As I do not make a practice of naming and "discovering" new species excepting when working on a monograph or other systematic work, I much prefer that my correspondents who send in new species should name and describe them themselves. In these Letters I indicate the unnamed species that reach me, and if the senders desire to publish them, it is perfectly agreeable to me. I shall not do it unless it comes in connection with systematic work. Isolated descriptions of new species as usually published are very much of a form, and not one out of ten can be recognized from the publication. At the same time we must have names for plants, but I would much prefer that some one else would propose them when I have occasion to use them.

Please note my recent change of address to England, which is now,

C. G. LLOYD,
c/o Mr. S. A. Skan,
37 Holmes Road,
Twickenham, England.

August 5, 1912.

ABBOTT, DR. E. K., Monterey, Cal. Collected in Hall County, Nebraska:

Daedalea confragosa. This species has exactly the same hymenium shape as Trametes gibbosa (which is a better Daedalea) of Europe. The texture of Daedalea confragosa is different from Daedalea gibbosa, and the latter species, we think, does not occur in the United States.

Catastoma subterranea.

AMES, F. H., New York:

Polystictus versicolor. Much more glabrous than usual.—Poria sp.

Fomes rimosus. This species, which is very abundant on locust trees around Cincinnati, is quite rare in the East. Mr. Ames writes me that he examined numbers of locust trees before finding a single specimen, whereas around Cincinnati almost every locust tree is infested with it.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

BALLOU, W. H., New York City:

Polyporus squamosus. Mr. Ballou finds it frequent on decaying elms. It is usually rather rare in this country.

Mitrula paludosa. The first collection received by me.

Trametes suaveolens, wintered specimen.

BILGRAM, HUGO, Pennsylvania:

Polyporus lucidus.

BONANSEA, DR. SYLVIO J., Mexico, D. F.:

Polystictus floridanus.—Stereum versicolor.—Polystictus pinsitus.—Polyporus heteroporus (=dimidiate rufescens).

Tremellodendron merismatoides as known in the United States (latest shuffle) although it probably has other names in the tropics.—Peniophora (?).

Polyporus. All broken in little bits, but very peculiar structure of prosenchymatous tissue, in which are imbedded much larger, deeper colored ligneous fibrils, somewhat similar to that of Amaurodermus Chaperi. (Cfr. Stipitate Pol., p. 189.) This however is a Polyporus related to Polyporus dryadeus, and I think unnamed, although I would not wish to name it from these little fragments.

BROCKES, DR. ANNA, Brazil:

Polyporus fruticum. A peculiar species differing in habits from most (if not all) other species. It grows on the twigs of *living* shrubs, usually encircling the branch and hence named "fruticum" like a fruit. Context soft spongy. Hyphae yellow. Spores subglobose hyaline 3-3½ mic. I note colored spores in the tissue and I suspect that ripe spores are colored.

Polystictus pinsitus.—Lenzites striatus.—Stereum caperatum.

Polystictus luteo-nitidus. (Cfr. Stipit. Pol., p. 163.) I am beginning to be satisfied that luteo-nitidus and multiformis are the same thing.—Polystictus occidentalis.—Panus rudis.—Schizophyllum commune.—Xylaria. Conidial form probably of Xylaria hypoxylon.—Xylaria. (Material very scanty.)

Stereum. Species unknown to me. Belongs to section Podoscypha if one uses Patouillard's ideas, or Lloydiella if Bresadola is followed. Glabrous, mesopodial, yellow. Cystidia few but large, hyaline, obtuse, with a few granules. I have never studied exotic species of this genus.

Polyporus rufescens var. hexagonoides. To most any "new species" promoter this would be an entirely "new species," but it impresses me as a form of the variable Polyporus rufescens. It has the same "structure" and general nature, but the pores are large, round, and shallow, not daedaloid, and deep as in the type form. The upper surface is not brown and pubescent, but light color and while not glabrous, it is not distinctly pubescent. The entire plant is same texture and very light weight, as is always the European form.

Polyporus rigens. Very close but not exactly same color, which is more olivaceous.—Polystictus unknown to me. Close to occidentalis, but much thinner.

Polyporus lucidus, tropical form as it is called. (Cfr. Stip. Pol., p. 102.) I am becoming more convinced that the tropical form has characters constant and distinct from the temperate region "form." This specimen has a peculiar metallic color of the pileus.

Trametes cirrhifer. While satisfied this is the same species as Polystictus cirrhifer, these are thick, rigid specimens with pores 5 mm. long, and must be put in section of Trametes (with hydnoides). The type of cirrhifer at Kew is a thin plant with short pores and is classed as Polystictus. This plant is quite different species from Trametes hydnoides in the nature of its hirsute covering.

Fomes. Very close to but distinct from Fomes rimosus. Spores 3½ x 4, deep colored. Setae none. This species is very distinctly stratified, and the strata vary in intensity of color. Fomes rimosus is but faintly stratified. It seems to answer the "description" of Fomes Cedrelae (except spores are smaller), but not much can be inferred from that.

CARTER, L. W., South Dakota:

Tylostoma campestris.

CRADWICK, WM., Jamaica:

Hirneola Auricula-Judae (pale form).

DESSENN, M., France:

Daedalea unicolor.

FORBES, C. N., Hawaii:

Fomes robustus.—Fomes.—Polyporus Schweinitzii.—Trametes hispida. —Trametes lactinea.

GAMBAGE, R. H., Australia:

Trametes lactinea. A beautiful white species very common in Australia.—Polystictus cinnabarinus.

IRANI, J. H., Sukkur, India:

Polyporus (Ganodermus) lucidus, "tropical form."

KOENIG, P., Mauritius:

Poria.—Fomes. Forming large slabs. Color ferruginous. Strata distinct. Pores minute with velvety pore mouths. Setae abundant, slender. Spores not found, evidently white. The foreign species of Poria have never been worked up in detail by any one.

Marasmius. Sp.—Polyporus bicolor (?), old and effete.—Polyporus (Ganodermus) Mangiferae. This species seems quite frequent in Africa.

Fomes. Spores globose, deep colored, 4-5 mic. Setae none. Pores very minute. The old pore layers paler color than the fresh growth. Crust black. An extremely hard species. Unknown to me, and the only species I find described with similar characters is Fomes ignarioides (from Mexico), but it can not be that as it is said to be "not stratified."—Polystictus carneo-niger.—Polyporus (or better Polystictus). Species unknown to me.

Cladoderris spongiosus. The development of the spongy, upper layer of the pileus of this peculiar genus is a varying factor. One specimen with slight development is Cladoderris infundibuliformis, but both are virtually the same species.

Polyporus. Pores white. Unknown to me.

Polystictus flabelliformis, virtually the same plant as Polystictus carneo-niger, but with pubescent zoned pileus.—Stereum versicolor.—Lentinus dactiophora.

LAKIN, W. T., Maryland:

Polyporus Berkeleyi.—Tremella frondosa.

Peck's "new genus" Myriadoporus (cfr. Myc. Notes, page 3), which is an abnormality of some Polyporus.—Polyporus dryadeus? young.—Thelephora. Unknown to me. Very close to T. Caryophyllacea, but I can not believe it is that species.—Stereum spadiceum.—Peniophora filamentosa?—Polyporus gilvus, but abortive and abnormal.

I think this is the plant called by Hennings "Merulius aureus var. hydnoidum," but is not a form of Merulius aureus. In its thick separable subiculum, its color and its coniophora spores it is related to Merulius lacrymans, but the deep (laccerate) pores remove it from that species as indeed from the genus, though it is closely related notwithstanding. I do not know any valid name for it.—Peziza badia.—Stereum (Hymeonochaete) tabacinum.—Cordyceps capitata.—Panus levis. Rather rare species.—Peziza Acetabulum.—Polystictus biformis.

LANGTON, THOS., Canada:

Polyporus squamosus.

MACBRIDE, PROF. T. H., Iowa:

Polystictus biformis.—Polyporus Leprieurii (from Nicaragua).

MARLOTH, R., Capetown, Africa:

Anthurus MacOwani. This is a species that has been recently published by Mr. Marloth. I have not seen the publication, but Mr. Marloth showed me a fine drawing when I was at Kew. It is related to Anthurus Aseraeformis of Australia, which is the only other species of the genus really known. The others are all too vague.

Polyporus. Unknown to me, but undeveloped.

MOUSSET, J. P., Java:

Polystictus (or Trametes) Persoonii.—Fomes lignosus.—Fomes (Ganodermus) australis.—Stereum versicolor.—Polystictus affinis.—Polystictus occidentalis.—Hirneola auriculae-Judae.—Xylaria (Sp.)

Polyporus (Ganodermus). Unknown to me. The spores while of the Ganodermus type are smaller, 5-6, and more globose than usual. They are smooth. I judge (from the description only) it is albo-cinctus of Patouillard.—Polyporus rubidus.

Daedalea glabescens. As to context size, shape and configuration it is same as the common Daedalea quercina of Europe, but the context color is *white* (isabelline in quercina) and the pore walls are smoother. It is

the first time I have received it.—Lenzites repanda.—Polyporus vinosus.—Polystictus xanthopus.—Polystictus affinis.—Poria, Sp.—Polystictus affinis. Short stem form.—Polystictus occidentalis.—Polystictus sanguineus.—Polystictus dermatoides.—Polystictus (or Trametes) obstinatus.

Polystictus phocinus as I believe from my photograph of the type, though it should be compared with the type at Kew. It is quite close to Polystictus caperatus.—Clavaria?—Xylaria. Globose species. I presume Xylaria haemorrhoidalis.

Polyporus picipes. The pores are distinctly larger than the European plant, but it could be named as a variety.—Fomes Hasskarlei.—Polystictus Blumei.—Polystictus. Unknown to me.—Xylaria, Sp.—Polyporus brunneolus.—Polyporus (Ganodermus) Mangiferae.—Lentinus (sp.).—Polystictus vernicipes.—Polyporus grammocephalus.—Polyporus arcularius.—Stereum (Hymenochaete) tabacinus.

PECKOLT, GUSTAVE, Brazil:

Ganodermus leucophaeus, stipitate form. I believe it is entitled to a distinct name.

PETCH, T., Ceylon:

Polystictus pergamenus.

Polyporus, unnamed I feel quite sure. Sessile, ungulate, with no distinct crust. Context isabelline, *soft, spongy* (2-3 inches thick). Pores small, slightly darker color. Spores hyaline, narrow elliptical, 7-8 x 16-18 mic., smooth, with a large gutta.—Polyporus, Sp.—Stereum elegans, named by Prof. Petch.—Hexagona discopoda.—Polyporus (Amaurodermus) rugosus. Typical.—Polystictus Gaudichaudii.

Fomes caryophylli. This has colored spores. I do not know why Berkeley never happened to get it.—Lenzites repanda.—Hexagona apiaria.—Hexagona Deschampsii.—Fomes lignosus.—Polyporus zonalis.—Polyporus vinosus.—Polyporus grammocephalus.—Polyporus adustus.—Trametes cingulatum.—Polystictus occidentalis.—Polyporus unknown to me.—Trametes unknown to me.—Trametes unknown to me.—Polystictus Blumei.—Polyporus Didrichensii.—Fomes (Ganodermus) applanatus.—Polyporus (Ganodermus) lucidus.

Polyporus lucidus, perennial form. I do not see how it can be held otherwise than a specimen that has semi-persisted over a season and *partially* revived.

Polyporus Emerici Berk. Not "Trametes," but a Polyporus related to gilvus, in color and (hyaline) spores but it has no setae. It is close in structural characters to Maliensis, which could be held as a thin, stipitate form.—Polyporus senex (or very close).

RICK, REV. J., Brazil:

Protubera Maracuja. This is the first time I have received this interesting species that was so well illustrated by Alfred Moeller.

DUTRA, DR. J., Brazil:

Polyporus dictyopus.—Schizophyllum commune.—Peziza Hindeii (??)—Trametes hydnoides.—Polystictus pinsitus.—Polystictus occidentalis.—Len-

zites striatum.—Lentinus rudis.—Lenzites repanda.—Polyporus fruticum.—Fomes australis (young).—Fomes leucophaeus. *Stipitate*.—Polyporus Feei.

Daedalea stereoides. I think exactly the same as the type at Upsala, of which I have a photograph. This is the first time I have received the species. It should not be confused with "Polystictus" stereoides of Europe.

Also two Xylarias, a Lentinus and a very curious genus unknown to me.

RIDDLE, L. W., Massachusetts:

Ganodermus lucidus, form carnosus. Two specimens, evidently the same species, one with a short stem, deep colored, laccate, typical of the stem of lucidus, the other subsessile. The pileus color is yellowish, faintly laccate, and corresponds to Ganodermus Curtisii. The context is soft, light and in this regard is same as Patouillard has called Ganodermus carnosus, but in my opinion is a condition due to rapid development.

ROMELL, L., Sweden:

A critical collection, embracing most of the types of Mr. Romell's recent paper on the Hymenomycetes of Lapland. The specimens are listed as named by Mr. Romell.

Poria Nuoljae, co-type.—Merulius lepidus, co-type.—Poria albobrunnea, co-type.—Poria pannocincta, co-type.—Merulius borealis, co-type.—Poria sericeomollis, co-type.—Poria resinascens, co-type.—Merulius himantioides.—Poria lenis.—Polyporus pallescens.—Poria vulgaris var. sulfurascens.

Polyporus stereoides. A very rare species, known principally in the extreme north. This is the first good specimen that I have seen.

Trametes protracta. This is the species that we get frequently from correspondents and which we usually (and we think correctly) name Lenzites saepiaria, trametes form. We think, however, Mr. Romell is also correct and that it is the original Trametes protracta of Fries' Icones, also his Hymenomycetes of Europe. Bresadola gives protracta as a synonym for what he calls trabea (or vialis of Peck). I am inclined now to think that Mr. Romell's interpretation of protracta Fries is the correct one. This is a reversal of my opinion, as stated in Note 1, Letter 29.—Corticium (Pen.) Lydendi.—Corticium jonides.

SAXTON, W. T., South Africa:

Fomes annularis. Ungulate, subpendulous, attached by a fixed point. Crust hard, brown, smooth, dull, not laccate, with narrow, concentrated, raised, annual rings. Context scanty, the pores reaching the crust. Pores small, round, long, with faint annual layers. Pore context brown, the mouths white. Spores 7 x 12 mic., obovate, truncate, distinctly rough. This from its spores belongs to the section Ganodermus, and while we usually recognize the section on sight we did not suspect this until we examined the spores. In its general color, color of pore context, pore mouths, and general aspect it resembles Fomes fomentarius and at first we thought it would prove to be a form of this species. As it is attached by a point it is probable that at times it may develop a short stipe like ochrolaccatus. The characteristic rough spores (of the Ganodermus type)

remove it from all other species except fulvellus, which is quite different in its laccate crust as well as attachment (dimidiate).

Lenzites repanda. Common in all warm countries.

Lenzites. Unknown to me, probably unnamed. Cortex hard, pure white. Surface smooth, white, as if glazed. Pores alutaceous.—Polystictus scorteus, which for me is only a thick, rigid form of Polystictus occidentalis. —Stereum lobatum (or versicolor, a better name for this collection).—Polyporus (very close to bicolor, but I think not).—Polyporus gilvus.—Polyporus, young and quite fragrant. Unknown to me.—Polyporus luteus (?), rather thick and much too pale color to be typical Polystictus luteus, but too close to have a separate name.

Fomes rimosus. Exactly the same on comparison with the common American species on Locust. Spores globose, 5 mic., deep colored. Pores very minute.

Fomes. Close and perhaps not distinct from Fomes Senex and Haskarlii. Has the same context color, setae, and hyaline spores. In the former two species (which are very close to each other) the pores are long and reach the crust with but faint indications of layers. In this the short annual layers are *very distinct*.—Stereum versicolor.—Polystictus sanguineus.

ROSE, J. N., Washington, D. C.:

Bovista plumbea (from Guadalupe Island, Lower California).

SOLORZANO, DR. M. M., Mexico:

This collection illustrates the common occurrence and wide distribution of the species of fungi. Of the twelve species, nine are common both in Europe and the United States, one (Polystictus sanguineus) common throughout the tropical world, and the other two (Lenzites striatus and Polystictus fimbriatus) frequent in tropical America.

Trametes cervinus (=Trametes mollis).—Schizophyllum commune.—Lenzites striatus.—Polystictus sanguineus.—Polystictus fimbriatus.—Trametes hispida.—Polyporus sulphureus.—Polystictus versicolor.—Polyporus rufescens form heteroporus.—Polystictus hirsutus (form pale).—Polystictus hirsutus (form with large pores).—Fomes applanatus.

Also two Agarics not determinable by me and a Lycoperdon immature.—Fomes pinicola.—Polystictus versicolor.

TEPPER, J. G. O., South Australia:

Poria. Unknown to me.—Corticium. Unknown to me.

THEISSEN, REV. F., Tyrol. Collected by Rev. J. Rick, Brazil:

Lenzites repanda.—Polyporus arcularius.—Polyporus fruticum.—Polystictus sector.

Ganodermus leucophaeus, stipitate. This stipitate form only reaches me from Brazil, and it is a question if it should not have a distinctive name.—Trametes ochro-flava.—Favolus multiplex (so named).—Lenzites erubescens.—Polyporus Patouillardii.—Polystictus sanguineus.—Polyporus stereinus.—Polyporus cubensis.—Polystictus rigens.—Favolus Braziliensis. —Polyporus zonalis.—Polyporus dichrous.—Polyporus luteo-niteus.—Polyporus gracilis.—Polyporus licnoides.

Lenzites furcata. This differs from the common betulina in its *narrow gills*. The old type specimen from Link is still found at Berlin.—Daedalea unicolor.—Polyporus conchoides.—Polystictus versatilis.—Polystictus rigens.

Favolus princeps. This has very peculiar cystidia (cfr. Stipitate Polyporoids, page 139, fig. 442).—Daedalea stereoides.—Polystictus versatilis.—Polystictus pinsitus.—Polystictus occidentalis.—Polyporus rhipidium (form pusillus Pers.).—Polyporus gilvus.—Polystictus iodinus.—Polystictus byrsinus.—Cladoderris dendritica.

Polyporus subolivaceus. I think this is the only valid name for this common species. Berkeley usually called it "Polyporus plebius var. cubensis," but I question if it has anything in common with Polyporus plebius of New Zealand.—Polyporus zonalis.—Hexagona variegata. Thick form and smoother than usual.—Polystictus roseolus *type*.—Poria isabellina.—Campanella pezizoidea, distributed by Rick as Merulius.—Polystictus pinsitus, abnormal.—Fomes torrulosus.—Poria, unknown to me.—Polyporus.—Merulius Corium?—Ganodermus pachyotis (Rick's determination. Unknown to me.).—Polyporus recurvatus. Co-type.—Poria bicolor. *Co-type no doubt.*—Fomes fasciatus.—Polystictus licnoides.—Polyporus brumalis. Seems same as the European specimens.—Polystictus caperatus.—Trametes Daedalea or Daedalea Trametes, as one may prefer.—Polyporus Blanchetianus.—Hexagona variegata.—Polyporus, unknown to me.—Lenzites repanda.—Polyporus rufescens.—Trametes hydnoides.—Polystictus petaliformis.

The following as labeled are all more or less doubtful to me.—Poria medullae panus.—Polystictus pergamenus.—Fomes pectinatus.—Polystictus decipiens.

VON SCHRENK, HERMANN, Missouri:

Daedalea juniperinus.

WEIR, JAMES R., Michigan:

Fomes Eberhartii.—Fomes. Abnormal. Sterile.

Polyporus unknown to me. I suppose it is what Murrill calls "Tyromyces palustris," but he does not give the spore measurements and the type of Polyporus palustris at Kew is so poor nothing can be told from it. This has hyaline spores, 3½ x 8 mic., cylindrical, curved.—Geaster hygrometricus.—Peridermium cerebrum. Named by Mr. Weir.—Endothia gyrosa (named by Prof. Weir).—Poria xanthospora. Spores colored. Setae none.—Polystictus cinnarbarinus.—Polystictus hirsutus.—Poria inconstans?—Urnula Craterium.—Fomes graveolens.—Polystictus biformis (effete).—Panus rudis.—Poria pulchella.—Ustulina vulgaris (conidial).

Also a number of collections (mostly resupinate) unknown to me.

WILSON, M., Scotland:

Polystictus fibula. At least my idea of it, and undoubtedly that of Quèlet. As no type exists, however, it is only an interpretation of Fries' writings.

YOUNG, R. H., Florida:

Cyathus sterecoreus, form Lesueurii.

LETTER No. 41

By C. G. Lloyd

Widely Distributed Plants.—Schizophyllum commune.

Notwithstanding the vast hordes of so-called "new species" that are brought out every year, no one truth is more prominent than that the species of fungus are few and widely distributed. It so developed with my work on the puff balls of every country of the world, and is so developing with my work on the Polyporoids. It is so shown in the few critical paper we have on the subject. In Lister's exhaustive work on the Myxomycetes, very few species are considered valid and listed that he does not record from such remote countries as Ceylon, America, Europe, Cuba, India, South Africa, etc.

While it is probable that in most cases species of fungi are widely distributed, the distribution is uneven and plants that are rare in one country are common in another. Some of our most frequent species in the United States are extremely rare in Europe. For instance, Polystictus pergamenus, Bovistella Ohiensis, Urnula Craterium, Polyporus albellus, Polyporus dichrous and others. Some plants are very common in Europe and rare in the United States, as Polyporus squamosus and Polyporus amorphus. Sometimes the distribution is very peculiar. Thus Archanion album is not infrequent in the United States, but in Europe is known from one single collection, made by L. Badet in Italy. The genus Matula is only known from Brazil and Ceylon. Polyporus volvatus is not rare in the United States and was recently found in Japan, but is absent as far as known from Europe. Hydnofomes tinctorius I have received from the west coast of America and it has also been found in Japan.

One of the commonest plants we find in our American woods is Schizophyllum commune. One can hardly go into the woods during the collecting season without noticing it. But it is not confined to the United States. The fungi of temperate countries in general are different from those in the tropics, but Schizophyllum commune makes no climatic distinction. It is essentially at home in the tropics as well as the temperate regions.

Notwithstanding that there have been several "new species" of Schizophyllum discovered, I think there is in reality only one species, and but very few collections are entitled to a seperate name even as a variety. Generally sessile, it sometimes develops from position of growth, a distinct stipe. Usually entire, at least in the United States, in the tropical world it is more or less lobed. However, these cannot be looked upon even as valid varieties for the same collection will often show all three forms.

There are ninety-two collections in our museum as indicated below and in the entire lot there is but one collection that impresses me as being entitled to a separate name even as a variety. Usually the plant is white; if it is discolored it is due to age. We have one collection from L. J. K. Brace of the Bahamas, that is dark umber, which we would call Schizophyllum commune, var. umbrinum. We think it has been named Schizophyllum umbrinum as a new species, but it is only a variety at the best.

We beg to thank the numerous collectors who have sent us specimens illustrating the wide distribution of this plant, as per the list on the following page:

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 20 1942

UNITED STATES AND CANADA,

Forty four collections from various correspondents.

MEXICO AND CENTRAL AMERICA

Chas L. Smith,	Nicaragua;
" " "	Mexico,
T. J. Collins,	Guatemala,
Dr. M. M. Solarzano,	Mexico.

SOUTH AMERICA

Dr. J. Dutra.	Brazil,
Dr. Anna Brockes (2)	"
Gustave Peckolt,	"
A. Hempel,	"
L. Damazio,	"
Leon Castillon,	Argentina,
Dr. F. Felippone	"
Dr. J. Kuyper	Surinam,
Rev. L. Mille	Ecuador.

WEST INDIES

F. Evans	Trinidad,
A. A. Evelyn (2)	Barbados,
L. J. K. Brace (2)	Bahamas,
W. H. Patterson	St. Vincent.

EUROPE

N. Chestenow	Russia,
E. Woulff,	"
Madame Rousseau,	Belgium,
Rev. L. Badet	Italy.

AFRICA

I. B. Pole Evans,	South Africa,
Geo. Thorncroft	" "
Miss. A. V. Duthrie	" "
Chas. A. de Mennezes	Funchal,
Chas. O'Connor	Mauritius.

INDIA

Unknown Donor	India,
Joges Ray	"
J. Hornell	Madras,
Wm. Gollan	British India.

AUSTRALIA AND NEW ZEALAND

Miss Margaret Flockton	Australia,
Edmund Jarvis	"
W. M. Carne	"
W. R. Guilfoyle	"
Albert Green	"
J. H. Maiden	"
W. E. Barker	New Zealand,
G. K. Hinsby	Tasmania,

PACIFIC ISLANDS

Museum, Paris	New Caledonia
C. N. Forbes	Hawaii
Mrs. C. C. Westerveld,	"
C. G. Lloyd	Samoa.

JAPAN,

Prof. A. Yasuda, (2)	Japan,
Jintaro Umemura,	"

LETTER No. 42.

Specimens received since last report. My best thanks are due to those who continue to favor me with specimens, as it is only by study and handling of abundant material that anything approximating the truth can be learned. Some of these specimens were received by me some time ago and should have been acknowledged in last letter, but were omitted through misplacement of the copy.

Where we have made notes on the specimens, we have lettered the contributors a, b, c, etc., for convenience in future reference to these notes. We are receiving so many specimens now for determination, that we have very little time for other work, and hence we have done but little other publishing during the past few months. In our printed letters we do not give authorities for names, believing that a binomial should represent a plant's name; but in acknowledging the specimens to our correspondents we usually give the names of the authority in event they desire to use this information. All specimens received are usually acknowledged by private letter soon after they come into our hands.

Heretofore it has been our policy to indicate the unnamed specimens received from correspondents with the hope that they would publish them. Very few have complied. There has been in the past so much farcical work done in the way of so-called "new species" that we have preferred to not engage in the work to any extent, but so many unnamed specimens have accumulated in the museum that it is embarrassing to preserve them without names. In the future we intend to publish and name such specimens as come to us in the sections in which we have thoroughly worked up the old species, namely, the Stipitate Polyporoids and the Gasteromycetes. If we stop to name every specimen which is received which we do not recognize, in keeping with the usual custom in these matters, Saccardo would have to hire an extra clerk in order to compile them. We should much prefer to leave unnamed all specimens except those belonging to the sections in which we feel we have a competent knowledge of the old species.

Please note my recent change of address to England, which is now,

(U. S. Address:
224 W. Court St.,
Cincinnati, Ohio.)

C. G. LLOYD,
c/o Mr. S. A. Skan,
37 Holmes Road,
Twickenham, England.

October 1, 1912.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

AMES, F. H., New York:

Lenzites betulina.—Daldinia concentrica.

ARANZADI, C. de., Spain (a):

Polyporus giganteus.—Stereum undulatum.—Polyporus rufescens.—Polyporus arcularius.—Polyporus lucidus. A fine specimen (from Biscay) with a stipe a foot long.

Clavariopsis (?) Species probably unnamed. The tendency nowadays to classify the tremellaceous plants on the basidia characters alone is quite complicated and embarrassing. This specimen, by all the old writers, would have been called a Tremella. It is pure white and in general appearance is very close to the common plant we have in the United States usually known (but badly misknown) as "Tremella albida." The basidia are not imbedded as in Tremella, but form a surface layer as in an ordinary "homobasidia." Doubtless (from analogy) they are cruciately divided when mature, though I find none such. They are all simply obovate bodies, showing no sign of septation or sterigmata, but are probably immature, as the moistened plant threw down no spores on drying. This type of basidia is what Holterman has shown in his genus Clavariopsis of Java, and to this genus I would provisionally refer the plant rather than make a "new genus." In form, however, the plant is a Tremella, not a Clavaria. We think no plant with similar characters has ever been noted from Europe, though if it has been named by any of the old mycologists it was undoubtedly as a Tremella.

Also three Hydnums not recognized by me, as I have not studied the foreign species of this genus.

BALDWIN, D. A., Massachusetts:

Geaster hygrometricus.

BALLOU, W. H., Forked River, N. J.:

Polyporus (Sp.)

BARBIER, M. J., France (b):

Hydnum amicum.—Hydnum zonatum.

Daedalea confragosa, Trametes form. This is labeled "Lenzites trametea Quèlet." It is the plant usually known in Europe as Trametes Bulliardi, but it is only the trametoid form of Daedalea confragosa.—Polystictus perennis.

Fomes fraxineus. Well illustrated by Bulliard under this name, and I think there is no excuse for Quèlet's name (incanus). Nor can I agree with Quèlet that it is a synonym for Fomes ulmarius, which is common in England on elm.

Polyporus Boucheanus (=Forquignoni Quèlet).—Hydnum caeruleum.—Irpex (Species unknown to me).

Polpyorus stipticus, I believe, in the true sense, a white plant that turns red when bruised. The white plant (not turning red) often called stipticus in France, is another species, I think.

BARKER, W. E., New Zealand (c):

Secotium erythrocephalum. A bright red gasteromycete, only known

from New Zealand and Tasmania. It has never been collected in Australia. (cfr. Lyc. Australia, etc., p. 6.)

Aseroe rubra (small specimen). (cfr. Syn. Phalloids, p. 46.)

Also three Clavarias, a genus I do not know as to species.

BASHAMBER, PROF. D. E., India:

Polyporus (Ganodermus) Curtisii.—Polyporus (Ganodermus) lucidus.—Polyporus (Sp.).—Stereum (Sp.).—Lenzites subferruginosus.

Polyporus plorans. This species was originally described from North Africa recently.

BECKER, DR. H., South Africa:

Fomes rimosus. Exactly same plant we have common on Acacia trees in the United States.

BERNIN, A., France:

Daedalea quercina.—Polystictus versicolor.—Polyporus rufescens.

BETHEL, E., Colorado:

Lycoperdon pusillum.—Polyporus alboluteus, showing how the species bleaches in winter.—Mitremyces Ravenelii (Hot Springs, Ark.).

BOURDOT, L'ABBE, France (d):

Rev. Bourdot sends us an interesting collection of plants, practically all of them rare species. We are particularly glad to get specimens of the genera Sebacina and Eichleriella, as well as the critical collection of Porias.

Polyporus Soloniensis, as regarded by Bresadola. This species is one of the "lost" species of France, at least I think there is no specimen in any museum nor recent record in French works. It was named by Dubois, 100 years ago, who recorded it common around Sologne, France, and stated the inhabitants call it "chavancella" and prepared amadou from it. It is a large plant, this specimen being eight inches thick and about sixteen inches wide. The substance which is white is quite light and spongy. The species was only known to Fries from the description and was compiled in Hym., Europaei, next to Polyporus dryadeus with "context colored," where it does not belong, if this is correctly referred. The spores are hyaline, piriform, 5 x 7. The plant is evidently very closely related to Polyporus sulphureus.

Trametes gibbosa.—Trametes subsinuosa.—Polyporus chioneus.—Thelephora spiculosa.—Thelephora pallida.—Thelephora intybacea (in sense of Quèlet, not Fries).—Sebacina podlachica.—Sebacina strigosa.—Sebacina calcea.—Poria calcea.—Poria fulviseda (An unpublished species of Rev. Bresadola).—Poria rhodella.—Poria medulla-Panis.—Poria sinuosa.—Poria gilvescens.—Poria Friesiana.—Poria obliqua.—Poria purpurea.

Poria aurantiaca. This species I have collected in Sweden and refer it to Poria aurantiaca on Rostk. figure t. 58, which is a good figure of it *when fresh*. In drying it changes from orange to reddish brown, a marked change. Persoon's figure of Poria cruenta is, I think, the same made from a dried specimen now in his herbarium (cfr. Myc. Notes, p. 471). The plant has been called (in error) Poria nitida, which is a quite different species according to the type in Persoon's herbarium.

Poria megalapora.—Epithela Galzini.—Fomes ribis.—Fomes pomaceus

(subresupinate).—Polyporus trabeus.—Polystictus versicolor.—Stereum sanguinolentum.—Stereum Chailletii.—Irpex pachydon.

Polyporus benzoinus. The identity of this plant with our common plant in America (called resinosus) has long been a disputed question. On comparison, the European plant is decidedly more ligneous and the context not nearly as soft as in our plant.

Polyporus elegans.—Polyporus Höhnelii.—Polyporus albus.—Poria aneirina.

Hydnum Schiedermayeri. This species, which is not unusual, both in Europe and America, and peculiar in always growing on an apple-tree trunk (not known from any other host), appears in Fries under the above (outlandish) name. Recently it has been referred, in this country, to croceum of Schweinitz, and in Europe to setosum of Persoon, both on the celebrated principle of "priority." The first is only a guess and probably a bad one, as no evidence exists and there is nothing in Schweinitz' short "description" to give any clue even to its identity. As to the second I do not know, but I suspect it is wrong, as Persoon would hardly have described it as "white" unless he had been color blind.

Corticium expallens.—Corticium filicinum (Cotype).—Eichleriella leucophoea.—Eichleriella Kmetii.

BRACE, L. J. K., Bahamas:

Fomes leucophaeus. Stipitate form.—Geaster saccatus.—Pluteus (sp.).

Simblum sphaerocephalum. Formalin material. Color deep red. The net is broken in fragments and such material (I have been recently told by Mr. Long) was submitted to Atkinson, on which he made the wonderful discovery of his imaginary "Dictybole" (cfr. Myc. Notes, pp. 130 and 363). The statement on page 363 that the genus was based on some abnormally developed eggs is an error, I am told by Mr. Long, due to a wrong impression on my part, but the true story of this wonderful discovery only makes it worse for the author.

Laternea triscapa. Formalin material. Agreeing exactly with the old figure as to size, but the first specimen known. The columns are fluted exactly as those of Laternea columnata, and Laternea triscapa is surely only a depauperate specimen (or form) of Laternea columnata.

Mr. Brace sends me also a sketch of a Laternea with two columns only (shown), which appears to be a two-columned form of Laternea columnata. The plant is orange above and the lower portion of the columns white. If these are constant characters of the phalloid, it is a "new species," but the probabilities are it is only a sport of Laternea columnata.

Polystictus albidus. Name attributed to Quèlet and seems to correspond to a specimen so named I have from Italy. I think a good "form" but, except color, has all characters of versicolor.

BREDA DE HAAN, DR. J. VAN, Java (e):

Polyporus. Color gray, sordid, with a rough surface. Pores minute, sordid. Spores 4 x 8, hyaline. This is not known to me surely, although it seems to answer my photograph of the type of Polyporus ostreiformis at Kew. It does not all agree with the description, however, but that does not count for much. It should be compared with the type. It is quite close to our plant in United States, Polyporus Spragueі.

BROCKES, DR. ANNA, Brazil (f):

Hirneola polytricha.—Polyporus subolivaceus.—Polystictus occidentalis (thin form).—Polystictus rigens.—Polyporus zonalis.—Polyporus varius.—Lentinus blepharodes (cfr. under Fischer, Letter No. 34).—Polyporus. I think zonalis, abnormal development, but I am not sure.—Stereum (Hymenochaete.)

Polyporus (Amaurodermus) Brockesii. Pileus thin, depressed in center, subinfundibuliform. Surface smooth, reddish brown, with darker zones. Stipe mesopodial, slender, with dull velutinate surface. Pores large, ½-1 mm. shallow, dark yellow, with concolorous mouths. Setae none. Spores abundant, colored, elliptical, smooth, not apiculate, 10 x 16 mic., with large guttae. A single specimen from Dr. Anna Brockes, Crixas, Brazil. This plant I would class in the section 7a of the recent Stipitate Polyporoids, with Polystictus gracilis, from which it differs in spores and stipe insertion. In general appearance and color it is close to Polyporus rufobadius, and the illustration (Bull. Soc. Myc. France, Vol. 5, pl. 10) well represents it in general appearance. Polyporus rufobadius (which I think is probably same as omphalodes) has minute pores and globose spores.

Polyporus rheicolor. These are the first specimens I have received, although it is found in several museums of Europe under three (and probably four) different names, Polyporus Splitgerberi (good type at Leiden, scanty at Paris, Kew and Upsala), Polyporus sulphuratus (types at Upsala and Kew), and Polyporus rheicolor (type at Kew and Paris). In addition, Polyporus citreus (very poor type from Australia at Kew) may be the same. It is the only *thin* species I know with bright yellow context and *deep-colored* spores. This is the first entire specimen I have seen, and the specimen is submerismatoid in manner of growth. Nothing can be told of its usual manner of growth from the separate pileoli in the museums. From Rick's collection at Paris I had the impression it was imbricate. Of the various names given the plant rheicolor is the best. With the exception of citreus (which is doubtfully the same) all the collections in the museums are from tropical America.

Xylaria aristata.—Lachnocladium brasiliense.—Stereum (Section Lloydiella).—Stereum (Section Lloydiella).—Polyporus gilvus?

CAHN, MRS. J. A., Michigan:

Polystictus hirsutus.—Polystictus hirsutus (thin form).—Hydnum ochraceum.—Polystictus circinatus (a rather rare find).—Lenzites betulina.—Polyporus dichrous.—Stereum versicolor (=S. fasciatum Schw.).—Polyporus gilvus.—Daedalea confragosa (trametoid form).—Polyporus melanopus.—Tremella frondosa.—Polyporus versicolor, old specimen, the hymenium colored red by some parasitic species.—Polyporus (not sure as to the species).—Polyporus albellus.—Favolus europaeus (small pored form =Favolus microporus).—Stereum spadiceum (when fresh the hymenium turns red on bruising).—Favolus europaeus (type form).—Lenzites trabea (=L vialis).—Polyporus adustus.—Polystictus hirsutus (abnormal as to shape).—Daedalea unicolor.

CASTILLON, LEON., Argentine (g):

Schizophyllum commune.—Polyporus rhipidium var. pusillum.—

Stereum versicolor.—Polystictus Friesii.—Polystictus pinsitus.—Polystictus sanguinarius.—Fomes australis.—Fomes applanatus.—Stereum (Section Lloydiella?) unknown to me, but characterized by a rose color, which, if I knew the foreign species of this genius, would distinguish it.

Fomes gilvus. Distinctly stratified, but surely only a fomes form of Polyporus gilvus.

Polystictus, very close to versicolor.—Lentinus, two species.

Polyporus connatus (?) This is a tropical white plant that is a typical Polyporus, both in texture and appearance. It has on the hymenium the same (peculiar) cystidia as Fomes connatus of the temperate world. I have seen specimens from Brazil referred to Fomes connatus, but while some Polyporus species in the temperate world (as gilvus and lucidus) may take occasionally perennial (stratified) form in the tropics, I doubt if the reverse is true. I do not know if this plant has a distinctive name, but it should have.

Lycoperdon piriforme.—Geaster mammosus. A rare species.

CRADWICK, WM., Jamaica:

Stereum (Sp.).

CROSSLAND, CHAS., England (h):

Polyporus caesius. When fresh and moist it turns *blue* when touched and is then easily known, but the old specimens and dried specimens became pale bluish gray. I never noticed any odor before and am sure the plant has none when fresh, but on smelling the dried specimens in my collection, I think I can detect the same odor in all. The spores (1-1½ x 4-5) are the same as those of Polyporus tephroleucus, but in this species, while the top and pores are grayish in dried specimens, the context remains *white*.

Polyporus rutilans (=Polyporus nidulans). Very common around Paris. Cfr. Sanders, Smith, and Bennett, Plate 45, which is a good picture of it. This is said to have an "agreeable" odor, but I have never noticed it.

Polyporus frondosus. Generally (but incorrectly) called Polyporus intybaceus in English mycology.

Polystictus fibula??—Polyporus chioneus.—Polyporus tephroleucus—Polyporus amorphus.—Polyporus destructor.

DAVIDSON, MRS. E. E., Ohio:

Phallus duplicatus. A fine specimen.

DAVIS, SIMON, Massachusetts (i):

Fomes leucophaeus.—Thelephora Caryophyllea.—Polyporus rutilans.—Bulgaria rufa.—Hydnum albidum.—Hydnum repandum.—Polyporus albellus.

Myriadoporus (??) This is a myriadoporus condition of some Polyporus which I can not refer to its normal form. The color and setae suggest Polyporus gilvus, but the spores (2½ x 8-10) do not accord with any species I receive which has setae.

Polyporus admirabilis. Beautiful specimens of a rare species, and Mr. Davis is about the only one of my correspondents who finds it. The spores are cylindrical, 3 x 8, not globose as inaccurately chronicled.

Lentinus chrysopeplus (named by Mr. Davis).—Cordyceps militaris.—Hydnum graveolens.—Cordyceps ophiglossoides.—Thelephora Schweinitzii.—Polystictus cinnamomeus.—Polystictus pubescens.—Stereum complicatum.

DAWSON, C. W., Oklahoma:

Bovistella Ohiensis (Sterile base).—Stereum diaphanum, a rare plant.

DEARNESS, JOHN, Ontario:

Polyporus, unknown to me.—Urnula craterium.—Favolus europaeus.—Lepiota Americana.—Daedalea quercina.—Panus conchatus.

DEMETRIO, C. H., Missouri:

Sphaerobolus stellatus.

DESSENON, M. E., France:

Polyporus adustus.—Fomes connatus.—Polystictus versicolor.—Daedalea unicolor?

DOBBINS, FRANK, New York:

Trametes Abietis.—Peziza aurantia.—Poria inermis.—Hydnum pulcherrimum.—Daedalea confragosa, form rubescens.—Polyporus adustus.—Fomes applanatus. The crust of this is soft, very close to the European form.—Poria (or Irpex) tulipifera.

EYRE, REV. W. L. W., England:

Polyporus Boucheanus (Cfr. Stipitate Polyporoids, p. 168).—Fomes Euonymus.—Polyporus stereoides, a very rare species.

FAIRBANKS, DR. A. W., Massachusetts:

Polyporus galactinus.

FAWCETT, H. S., California (j):

Fomes applanatus. This specimen corresponds exactly with the European plant, having a rather soft, brown crust. The pore mouths are yellow and there is an intersection of context between the different pore layers. This form of applanatus having the context strata seems to be what Fries called Polyporus vegetus, but it is a condition only and not even a distinct form.

FISHER, G. CLYDE, Georgia:

Polyporus (Ganodermus) Curtisii.—Lenzites betulina.—Geaster hygrometricus.—Geaster rufescens.—Polystictus hirsutus.—Polystictus gilvus.—Stereum versicolor (fasciatum).—Polystictus pergamenus.—Polystictus versicolor.—Schizophyllum commune.—Trametes sepium var. minimus.—Stereum complicatum.—Poria Tulipifera.—Peniophora incarnata (?)

GILLET, REV. T., Congo, Belge:

Polystictus xanthopus—Polystictus leoninus.—Polyporus sacer.—Lenzites repanda (very thin form).—Lentinus dactyliophora.—Rhizomes of some Marasmius. They look like "horse hairs."—Stereum Sp.—Lentinus Sp.—Lycogala Epidendrum.—"Xylaria" flabelliforme.—Cyathus limbatus.—Sclerotia (?)

JAHANDIEZ, M. E., France:

Polyporus Schweinitzii.—Fomes pinicola.—Fomes pomaceus (resupinate).—Corticium caeruleum.—Polyporus cuticularis.—Daedalea unicolor.—Auricularia mesenterica.—Polyporus tephroleucus.

JANSE, A. J. T., Africa:

Polyporus scruposus, which is only a form of Polyporus gilvus. Polyporus scruposus was named from America, but we do not have in this country such strongly rough specimens as these which are strongly marked. There are, however, in the same collection, specimens almost smooth.

Schizophyllum commune.—Schizophyllum commune (small form).—Daldinia concentrica.—Polyporus ochroleucus.—Polystictus lanatus (yellow form of occidentalis).—Polyporus grammocephalus.

KNAEBEL, ERNEST, New Mexico (k):

Catastoma pedicellatum. (Cfr. Myc. Notes, p. 121.) This is our only native species with rough, strongly pedicellate spores. The peridium is purplish umber, similar to Catastoma pila in color. I received it from W. H. Long, Denton, Texas, several years ago and thought it was unnamed on account of this purplish color of peridium. On comparison now with my Florida material, I find that Catastoma pedicellatum, when mature, has this purplish color, hence although Mr. Long's as well as the present specimens are much larger and deeper purple—they have all the essential characters of Catastoma pedicellatum, and in my opinion must be so referred.

Geaster asper. These are not the typical form. The exoperidium is more hygrometric, smoother, and cut into more narrow segments than the type form. It is the same plant that Dr. Hollos has called Geaster pseudo-striatus (cfr. Geastreae, p. 43), and confirms to my mind the opinion I have published that pseudo-striatus is but a synonym for asper.

Fomes pinicola. Unusually strongly laccate specimen as well as abnormal in shape.—Lycoperdon piriforme (typical).—Lycoperdon piriforme. Subglobose form in moss.

Calvatia pachyderma. This species is confined to our Southwest and in tropical America. It is only a form of Calvatia gigantea with thicker, more scaly peridium. The spores and capillitium are the same.

Fomes igniarius.—Polystictus abietinus.—Hypomyces lactifluorum.—Crucibulum vulgare, on pine cones.—Bovista plumbea.

Catastoma pila (cfr. Myc. Notes, p. 443). The spores are globose, 10-14 mic., tubercular, with a short pedicel (3 mic. long), or mostly apedicellate. This species was named by Robert E. Fries, from Argentina, in 1909. The specimen had been submitted to me and I supposed it the same as I had from W. H. Long, Denton, Texas, under this (mss.) name. On comparison I find it quite different in its spores and that Mr. Long's collection should have been referred to Catastoma pedicellatum. Catastoma pila has been known to me under the (mss.) name Catastoma nigrescens for several years. First, I received it (1905) from C. L. Shears, Garland, Colorado; then, 1906, from Ernest Knaebel, Platte River, Colorado (alt. 9,000 feet); then, 1908, from Dr. J. F. Brenckle, Kulm, Nort Dakota, and now have it abundantly from Ernest Knaebel collected, Valle Grande, New Mexico. I have it also from Robert E. Fries, Argentina (cotype), and from Rev. L. Mille, Quito, Ecuador.

KOENIG, P., Mauritius:

Lenzites repanda.—Polyporus gilvus.—Polystictus flabelliformis.—Polystictus carneo-niger.—Polystictus sanguineus.—Polyporus inamaeus.—Polyporus (Ganodermus) Oerstedii.—Polystictus cryptomeriae.

KRIEGER, L. C. C., California:

Cyathus vernicosus.—Poria. I judge from the specimen, though it may be the resupinate part of some pileate species. Unknown to me, I think unnamed. Surely not an Eastern species.

Phallus impudicus var. imperialis. Mr. Krieger records the "volva at first pale pink, soon turning to a purple lavender." As I have published, we do not seem to have the type form of Phallus impudicus (with white volva) in the United States.

Crepidotus fulvotomentosus (as named by Mr. Krieger).

Gyrophragmium decipiens (cfr. Myc. Notes, p. 196, Plate 23). It is very doubtful, however, if there is any real difference between it and the Mediterranean (type) form Gyrophragmium Delilei. Mr. Krieger notes that the color of the gills in the young plant is delicate pink, and that the gills become moist, subdeliquescent, like some species of Psaliota, and I judge he thinks the genus is related to Psaliota. I think the view is nearly right. Mr. Krieger also sends a collection with the pileus more strongly scaly than usual.

KUYPER, J., Surinam (l):

Two beautiful photographs of Phallus indusiatus and Phallus roseus. The latter is only a form of Phallus indusiatus, and the photographs could not be told apart without the color notes.

Polyporus simulans, as nearly as I can judge from my notes at Kew. It should, however, be compared. It is quite close to Polyporus fumosus of Europe and United States.

Stereum elegans.—Polyporus lignosus.—Polyporus arcularius. Surely same as temperate region plant, although pileus on these is not scaly.

Fomes unknown to me, I think unnamed. Characterized by *very minute* impalpable pores, not seen except under the microscope.—Polyporus zonalis. —Cladoderris dendritica.—Fomes inflexibilis.—Lenzites repanda, Stipitate form.—Lenzites repanda, the ordinary sessile form.—Polystictus caperatus. —Cyathus limbatus.—Polyporus (Ganodermus) Oerstedii.—Polyporus (Ganodermus) fulvellus?—Polystictus Moelleri?—Trametes hydnoides.

LAKIN, W. T., Maryland:

Hypoxylon Petersii.

LEEPER, B., Ohio:

Reticularia Lycoperdon. The finest specimen of a rather rare species I have ever seen.

LEHMAN, E. A., North Carolina:

Leotia lubrica.—Clavaria pistillaria.—Thelephora vialis.

LONGYEAR, B. O., Colorado:

Rhizopogon (Sp.).

MACBRIDE, PROF. T. H., Iowa (m):

Pyrenomyxa invocans. Cotype material. My best thanks are returned for this specimen. It is a curious thing and Morgan was undecided whether it was a Pyrenomycete or a Myxomycete. Rev. Thiessen has recently published that this is a synonym for Camellia turbinata. This is a bad mistake, for the plants have no resemblance (one to the other) whatever.

MILLE, REV. L., Ecuador:

Geaster minimus.—Geaster Schmidelii.—Geaster saccatus.—Tylostoma Berteroanum.—Xylaria (Sp.).—Polystictus versicolor.—Polystictus unknown to me.—Hydnangium (Sp.).—Cora pavonia.

MOUSSET, J. P., Java:

Lenzites repanda.—Polystictus vernicipes.

NAKANISHIKI, K., Japan (n):

Lenzites saepiaria. The Japanese plant is paler in color and has slightly more distant gills than the common plant in America and United States. In its essentials it is the same species for me. In color it is quite close to Lenzites subferruginea (also common in Japan), but which has much broader gills.

Polyporus adustus.—Fomes Haskarlii, young specimen.—Polystictus versicolor.—Daedalea unicolor.—Lenzites saepiaria.—Daedalea quercina, young.—Trametes Persoonii. This collection is harder and more "trametoid" than usual. Usually it is better classed as Polystictus.—Lenzites saepiaria.

NAMBU, N., Japan:

Polyporus ochroleucus.

O'CONNOR, CHAS. A., Mauritius (o):

Trametes Persoonii. This common tropical species is quite variable. Sometimes quite thin (Polystictus). Sometimes more thick (Trametes). Usually the pores and context are white, but this collection has an isabelline tint.

Polystictus occidentalis. The "type locality" of this common tropical species is Mauritius.

Polyporus lignosus. Mauritius is also the type locality of this plant. It is very common in the tropics and has lately, by Professor Petch, been found to be a destructive disease of the rubber tree.

Laternea angolensis. The genus Laternea, very common in the American tropics, is known from but few collections from Africa. Many years ago Welwitch figured a white species from Angola, which is named Laternea angolensis and differs from the American plant in having the columns attenuate at the top. This plant agrees with Welwitch's figure as to shape, but is red instead of white. It is pretty well established that several phalloid species vary in color from red to white, hence I feel this should be held to be a red form of Laternea angolensis.

Polyporus (Ganoderma) lucidus, tropical form.

OVERHOLT, L. O., Ohio:

Lenzites trabea and Lenzites saepiaria, coalescing in growing.

PARISH, S. B., California (p):

Podaxon Farlowii. This is our only American species and grows in the desert regions of the West. Collected in the Colorado desert near Mexico.

PECKOLT, GUSTAVO, Brazil (q):

Polyporus (Amaurodermus) angustus. A remarkable species and one

that I am more than glad to get, as the only other specimen known is the type at Kew. As to macroscopic characters, the color, the smooth but rugulose surface and crust, the mesopodial, smooth but dull stem, the *pale context*, it agrees with the type. The spores on the type are colored, globose, and rough, but they impressed me and I believe them to be (as I have published) conidial spores. The spores of this specimen are normal, basidial spores (sans doubt). They are subglobose (8 x 10), colored *strongly rough*, and typically the spores of the section Amaurodermus. This is a most peculiar species, the only one in the section Amaurodermus (or other sections as far as I can recall) that has a *white* context and *colored* spores. Many species have colored context and white spores, but the reverse is a rare case.

Polystictus occidentalis.—Stereum (Hymenochaete) damaecorne.—Polyporus (Amaurodermus) angustus.—Polyporus licnoides.—Hexagona variegata.—Polystictus pinsitus.—Polyporus Blanchetianus.—Trametes hydnoides.—Stereum (Hymenochaete) papyrinum?

PETCH, PROF. T., Ceylon (r):

Fomes Caryophylli.—Polyporus (sp.).—Lenzites betulina.—Stereum ostrea, named by Professor Petch.

Hexagona elegans. These specimens are thinner than the type, as I remember it. Also they have a reddish stain, not noticed by me, on the type. The reference is not sure.

Fomes robustus var. setelatus, resupinate.—Fomes (Ganodermus) leucophaeus.—Polyporus semilaccatus.—Polyporus zonalis?

Polystictus elongatus. The fresh specimens have pale pores, no violaceous tint, otherwise same as Polystictus pergamenus, so common in America.—Fomes pectinatus. Agreeing with type from India, but the records of this plant in Europe are all erroneous.—Polyporus gilvus.—Trametes (or Polystictus) lutescens.—Polystictus pictilis??—Polyporus Blanchetianus.—Polyporus arcularius.

Fomes adamantinus var. setiferus, as I shall call it. This is a most common species throughout the East, same as the type specimen of Fomes adamantinus at Kew, except the common form has setae (not found on the type) =Fomes melanodermus, which is the name Bresadola uses. Murrill has three names for it (all wrong), Fomes lamaensis n. s., Fomes Williamsii n. s., afterwards referred by him to endotheius, with which it has not a character in common.

Trametes Persoonii, form differing from ordinary in not being colored on top, but this common species does not always have the usual color of pileus top developed.

Fomes robustus var. setelatus, as I shall call it. Absolutely same as Fomes robustus, of Europe, in every particular except having very abundant inflated setae on the hymenium, which are absent in the European species.

Polyporus ochroleucus, readily known by its *large*, truncate, hyaline spores. It turns black when old, and the spores of a black specimen I find to be pale colored. Is Polyporus ochroleucus a Ganodermus *when old?*

RAY, JOGES, India:

Polyporus (Ganodermus) lucidus.—Schizophyllum commune.—Polystictus flavus.—Polystictus sanguineus.—Daldinia concentrica.—Polyporus

gilvus, resupinate portion.—Trametes cingulatus.—Lentinus dactyliophorus. —Lentinus Sp.—Xylaria Sp.

REA, CARLETON, England:

Phaeotremella pseudofoliacea (Cotype). A genus of Tremellaceae recently named by Mr. Rea. It is characterized by colored spores (cfr. Trans. Brit. Myc. Soc., Vol. 3, p. 377).

RICK, REV. J., Brazil:

Bovista bicolor.

ROBINSON, P. G., New Zealand:

Fomes australis (abnormal).—Fomes unknown to me.

SCHESTUNOW, N., Russia (s):

Mycenastrum Corium.—Polystictus versicolor.—Polyporus sulphureus.—Trametes hispida.—Irpex lacteus.—Poria (Sp.).—Poria ferruginosa.—Lycoperdon caepeforme.

Specimen unknown to me. I judge abnormal Lenzites betulina, though I do not know that it takes this daedaloid form.

Polystictus lutescens. This, as to surface and pores, is same as hirsutus, but context color is yellow. Polystictus lutescens of Europe, and Polystictus occidentalis of the tropics are very close, if not the same species.

Polyporus adustus sent as tristis, Persoon, which is same species.—Daldinia concentrica.—Fomes undeveloped.—Fomes pinicola.—Polystictus zonatus.—Polyporus adustus.—Daedalea unicolor.—Polyporus lucidus, subsessile, mesopodial specimen.

SCHRENK, HERMANN VON, Missouri (t):

Polyporus robiniophilus, which is the common and only white species, to my knowledge, growing on the locust tree. It is unknown excepting in the United States, and by the older mycologists it was referred to Polyporus salignus, with which it agrees in most characters excepting the spores. This species is a typical Polyporus, the pores being entirely distinct from the trama, and its reference to the genus Trametes is contrary to the elementary idea on which the genus Trametes is based.

STERLING, E. B., New Jersey (u):

Daedalea confragosa.—Polyporus dichrous.—Polyporus sulphureus.—Polyporus giganteus.—Daedalea quercina.—Polyporus Spraguei.—Polyporus albellus.—Poria (or Irpex) tulipifera.—Fomes leucophaeus.

Polyporus corruscans. Found on birch, and a rare find, as the species is not common either in United States or Europe. Exactly same as I collected in the "type locality," Fries' collecting grounds near Upsala. Generally known in the United States as Polyporus dryophilus. Spores 6 x 8, colored. Setae none. These are very fine specimens.

STORER, E. D., New Hampshire:

Polystictus cinnabarinus.

SWANTON, E. W., England (v):

Polyporus caesius.—Fomes pomaceus.—Fomes fraxineus.—Fomes ulmarius.

The specimens of Fomes fraxineus and ulmarius show, by contrast, the differences between these two closely related and often confused species. Fomes ulmarius grows, I think, only on elm. The pore layers are quite distinct and of deeper color than the context (especially when fresh, the pores fade considerably in dried specimens). The context is hard and cuts with a brittle fracture.—Fomes fraxineus, while very similar in general appearance, the context and pores (flesh color in young specimens), and not very distinct as to color. The context is hard but more of a "punky" nature as shown in cutting it. It grows on various frondose wood (apple trees and particularly ash).

THOMSON, GEO. M., New Zealand (w):

Fomes australis (?) I feel that this should be referred to this common tropical form with which it agrees in context color, crust, and general appearance. The trama is diseased (as is often the case with this species) and I find no spores. There is one character of the specimen, however, that departs from the usual collection, and I place considerable stress on it. It has no stipe, but is attached by a reduced base, *not dimidiate* as australis normally and usually is.

UMEMURA, J., Japan (x):

Daedalea gibbosa. (In Saccardo as Trametes.)

Polyporus (or Polystictus). Unnamed, I think. Not distinctly stiped, but from a reduced base, and would be sought in Section 17 of Stipitate Polyporoids. Pileus thin, with colored, brown, zoned pubescence, and darker smooth zones. Context and hyphae colored. Spores not surely found, but I think hyaline, smooth, 4 x 10, pointed at each end. Very close to caperatus.

Schizophyllum commune.—Stereum hirsutum.—Stereum (unknown to me).—Polystictus sanguinarius.—Stereum versicolor.—Polyporus. Unknown to me. I think unnamed.—Trametes lactinea.—Irpex (Sp.).—Lenzites subferruginea.—Polyporus brumalis. Lighter color than our usual American plant, but same species.

Stereum (Section Hymenochaete). Species unknown to me. The setae (colored) are mostly imbedded and project but little.—Hydnangium, species doubtful.—Polysaccum pisocarpium.—Polystictus, unnamed, I think. Pores large, shallow. I do not recall ever seeing such a species.—Calvatia. Sterile base.—Stereum versicolor.—Polyporus musashiensis (??).—Polyporus. Close but surely different from Polyporus dryadeus of Europe.—Polyporus (Sp.).—Trametes (Sp.).—Scleroderma Cepa.—Daedalea gibbosa.—Fomes (Ganodermus) australis.—Fomes (Ganodermus) nigro-laccatus. For me it is only a form of Fomes australis with a slightly laccate exudation on the crust.—Fomes pachyphloeus.—Geaster hygrometricus unopened. Very deceiving in this state.—Lycoperdon umbrinum.—Polystictus iodinus. Unusually bright-colored specimens.

Lenzites subferruginea. This, which seems to be a frequent plant in Japan, replaces there Lenzites saepiaria of Europe and America, and is quite close especially as to color. The Japanese plant is smoother, has broader gills, and is more distinctly lenzitoid than the usual plant in America.—Polyporus musashiensis?—Polystictus lutescens.

USSHER, C. B., Java:

Ptychogaster?—Fomes (Ganodermus?).—Polystictus dermatoides.

VAN BAMBEKE, CH., Belgium (y):

Hydnum erinaceum.—Daedalea gibbosa.—Polystictus fumosus.—Polyporus borealis.

Polyporus (Ganodermus) Oerstedii. This plant is same as Polyporus lucidus except that it has no stipe. It is often held to be a form of lucidus. I think it is entirely distinct, biologically, and that lucidus always has a stipe at least in Europe. This sessile plant has various names (resinaceus in Europe, sessile in America, etc.), but the first was Polyporus Oerstedii as named by Fries from the West Indies.

VANDERYST, HYAC., CONGO, Belge (z):

Polystictus xanthopus.—Polystictus florideus (which is only a dark form of xanthopus).—Polystictus (sp. unknown to me).—Polystictus Drybowski (not Hexagona as in my synopsis).—Hexagona discopoda.—Hexagona dermatiphora.—Trametes cingulatus.—Polystictus lanatus.—Polystictus flavus. —Polystictus sanguineus.

Polyporus licnoides (?). One specimen is thin and typically marked as licnoides (type), others are more thick (1 cm.) than licnoides should be to be normal.

Polyporus (Amaurodermus) salebrosus. Pileus strongly rugulose sulcate, brown, with a dull (not laccate or velutinate)surface. Context very thin, brown. Pores minute, with brown context and concolorous mouths 3 mm. long. Spores *very faintly* colored, globose, smooth, 10-12 mic. Stipe mesopodial, brown, smooth, but dull surface, ½ x 6 cm. This species belongs to Section 5 (Amaurodermus) of recent Stipitate Polyporoids. It differs from Polyporus rugosus, which is its nearest ally, in its very thin context, very minute pores, and its very pale-colored (almost subhyaline) spores. The context is so thin it might be sought in the Polystictus section, but brittle (not flexible), hence I think best placed in the Polyporus section. The pores are minute, hardly visible to the naked eye.

Hexagona Pobeguini. The velutinate pore surface under the microscope resolves into brown setae, but with the appearance of being projecting hyphae and not the surface setae of the Hymenochaete type. Many of these are collected into bunches visible to the naked eye, and the same nature as those of the "genus" "veluticeps," I judge.

Polyporus Oerstedii.—Polyporus (unknown to me).

WILLIAMSON, H. B., Australia:

Hexagona Gunnii. These are the first specimens I have gotten of this characteristic Australian species (cfr. Syn. Hexagona, p. 15).

Polyporus ochroleucus. The finest and largest specimen I ever saw of the species.

Fomes robusta (Cfr. Note 14, Letter 33).—Stereum hirsutum.—Polystictus sanguineus.—Schizophyllum commune.—Stereum. Unknown to me. Probably lugubris (from its name), which I do not know.

WOULFF, E., Russia:

Trametes pini.—Daedalea quercina.—Fomes pomaceus.—Polyporus sulphureus (old, discolored).—Phlebia radiata.

YASUDA, PROF. A., Sendai, Japan (aa):

Photograph of Lasiosphaera Fenzlii. The plant is 25 cent. long and 20 cent. wide. This is the gigantic puff ball of the East, and replaces there Calvatia giganteum of Europe and America.

Trametes hisipda.—Merulius tremellosus.—Fomes fomentarius.—Fomes applanatus. — Fomes leucophaeus. — Fomes nigro-laccatus. — Polyporus adustus.

Polyporus amorphus. Frequent in pine regions in Europe, though it seems to be *absent from America*. Its occurrence in Japan is therefore of special interest. (Note—Since this was in type, received by me from Mr. Weir, Idaho.)

Lenzites betulina. Pale form slightly daedaloid. In Europe and United States this never takes daedaloid forms to my knowledge.—Polyporus secernibilis.—Polyporus gilvus.—Polyporus adustus, form.—Polyporus varius.—Polystictus Pocas.—Polyporus semilaccatus.—Polyporus varius. A thin form.

Also several collections, mostly Polystictus, unknown to me. There is one Fomes and one Polyporus with very marked characters, but unknown to me and I believe unnamed.

Polyporus dichrous.—Pleurotus (Sp.).—Polyporus, unknown to me.—Hydnum repandum, Fr. var. album.—Polyporus (Sp.).—Thelephora (Sp.).—Polystictus cinnamomeus.—Guepinia spathulata. (This is the slender variety called Guepinia fissa.)—Thelephora (Sp.).—Fomes (Ganodermus) leucophaeus.

Polystictus luteo-olivaceus var. fuscus. This seems to be the same as to surface, context, pores, and all essential characters as luteo-olivaceus of Africa and Australia. The color of the plant and color of context is darker.

Hypoxylon (Sp.).—Stereum bicolor.—Hydnum imbricatum.

Polyporus pocula. The occurrence of this unique little species (cfr. Myc. Notes, Polyporoid Series, p. 44, and Stipitate Polyp., p. 140) in Japan is of much interest. At Berlin there is one collection made in Japan and this is the second one known to me from Japan.

Trametes confragosa. A strigose, trametoid form of Daedalea confragosa.—Hirneola auricula-Judae.

Polyporus. This belongs in same section with Polyporus gilvus, same setae on hymenium, and same general color. The context is quite different in texture from gilvus. I do not think it has a name.

Polyporus ochroleucus.—Panus dealbatus. Very rare in America and unknown from Europe. First record from Japan, I think.—Thelephora (Sp.).—Helotium citrinum.

Polyporus. Unnamed. Stipitate. Belongs to Section 46 (?) of recent pamphlet. The stipe shows dark and it may be a Melanopus in Section 51. The specimen has evidently changed so much in drying that color notes from a fresh specimen and photograph would be advisable before naming it.

Daedalea unicolor? It appears too smooth, but is old and the hirsute covering may have disappeared.—Polyporus Schweinitzii.—Enteridium Roseanum.—Lycogala Epidendrum?—Platygloea (Sp.).—Stereum (Hymenochaete). Strongly marked with zonate pileus. The setae are very pale color.

Lenzites Japonica, I think, on comparison with my photograph of the (poor) type at Kew. The specimens should be compared. This is close to Lenzites betulina.—Daedalea (Sp.).—Polystictus. Unknown to me.

Polyporus albellus, for me, although it is a species much in dispute. Bresadola would refer it, I think, to Polyporus lacteus, but I can not agree that it answers to Fries' description. Many authors refer it to Polyporus chioneus, which it may be as to Fries' Hym. Europaei, but not his original description. It has cylindrical, curved, allantoid spores, 1 x 5, and is common in America, rare in Europe.

Polyporus (Sp.).—Fomes pinicola.—Polystictus versatilis.—Polyporus arcularius. — Ozonium. — Polyporus heteroporus. — Polyporus vinosus. — Schizophyllum commune.—Lenzites repanda.—Lenzites saepiaria.—Favolus Europaeus.—Polystictus versicolor.—Polystictus hirsutus (form albidus). Polyporus resinosus.—Polystictus.—Fomes minutus.—Polystictus (Sp.).—Daedalea unicolor (very?).—Daedalea. Unknown to me. It is quite close to Trametes cervinus (Trametes mollis) and may be so referred as a form.—Lenzites species.—Daedalea Kusanoi (?).—Fomes. Unknown to me. Context snuff brown (No. 303, Rep. Couleurs). Hyphae deep yellow. Basidia (and I happened to find one quite distinct) hyaline. Spores (if I have correctly found them) globose, hyaline, 3½ x 4. Cystidia none. These are in the main the same microscopic characters as Fomes robustus of Europe, but the European species has an even surface, not sulcate, uneven zoned, as this plant.—Lenzites subferruginea Berk (?).—Fomes. Unknown to me, but close to Fomes ribis. Color context burnt umber (304 Rep. Couleurs). Setae none. Spores not found by me, but probably pale yellow, as the hymenial elements are yellow.—Daldinia. vernicosa.

YOUNG, MISS ESTHER, Ohio:

Hydnum Schiedermayeri.

ZENKER, DR. G., Africa (bb):

Polyporus (Amaurodermus) trulliformis. Entire plant "auriscalpium" shape, ferruginous brown. Pileus about 2 cm. in diameter, with dull rugulose, slightly zonate surface. Pores minute, with concolorous mouths. Stipe pleuropodial, slender, 2-3 mm. thick, with a dull mat surface. Spores oval, 12 x 16 mic. colored, distinctly rough, apicula none. This species belongs to Section 6c of the recent Stipitate Polyporoids. In general size and shape it is the same as our figure 407 (Polyporus auriscalpium) and differs from this species (of the American tropics) in its spore characters. It evidently proceeds from a rooting rhizome.

Schizophyllum commune.

Polystictus caperatus. Some of these specimens have a curious scrobiculate top, not normal, I think. The plant in Africa is not as strongly zoned as in the American tropics. Polystictus Fischeri, as named by Hennings, is the same form.

Polyporus lignosus. This collection is not as lignescent as usual.—Lenzites repanda. Very thin form.—Polystictus occidentalis. Context not as yellow as in my African collection.—Thelephora (Sp.).

Also three Stereums, species unknown to me, as I have not studied the foreign species of this genus.

LETTER No. 43.

Report on specimens received since October 1st. My best thanks are extended to those who have favored me with specimens. I desire especially to thank Mr. Weir, who has sent me one of the finest collections from Idaho that I have ever gotten.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority," in event they desire to use the same. All specimens are acknowledged by private letter as soon as they come into my hands. Foreign correspondents can send specimens to my English address and they will reach me promptly, although in countries where there are direct parcels post arrangements with the United States, it is best to send them by parcels post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
c/o Mr. S. A. Skan,
37 Holmes Road,
Twickenham, England.

October 15, 1912.

BATES, REV. J. M., Nebraska (a):

Polystictus versicolor.—Polystictus hirsutus.—Irpex lacteus.—Daedalea unicolor, irpicoid form.—Lenzites saepiaria.—Polyporus gilvus.—Lenzites saepiaria, Trametes form.—Fomes leucophaeus.

Fomes pomaceus on Prunus Americana, as named by Mr. Bates, and I think, correctly, although this is of an unusually regular, ungulate shape. Generally, pomaceus is subresupinate with imperfectly formed pilei.

DONOR UNKNOWN, Tasmania (b):

Polystictus cinnabarinus; some have bleached almost white.—Rhizopogon (Sp.).—Polyporus. Probably unnamed, but, according to my notes at Kew, I should like to compare it with hololeucus, leucocreas, and portentosus before stating definitely. It has the appearance of an obese specimen of caesius of Europe, grayish surface, pure white context, discolored pores. The spores, however, are subglobose, hyaline, 8 mic., with a large gutta, totally different from the spores of caesius.

FROGGATT, W. W., Australia (c):

Polystictus cinnabarinus.—Geaster velutinus.—Polystictus sanguineus. —Schizophyllum commune.—Mycenastrum Corium.—Tylostoma McAlpini-

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anum.—Polyporus unknown to me, probably unnamed. I have looked through my notes and photographs from Europe and find nothing at all like it. It is close to Polyporus Spraguei, of the United States. Same color, surface, and pores, but more scrupose and spores (3 x 5, piriform) different.—Scleroderma Sp. (very immature).—Scleroderma flavidum.

Clavaria rubroflava. The only truly "yellow" puff ball we have. I have noted that it is "domestic" in its habits, usually found in gardens and cultivated ground in the United States where it is not common. Mr. Froggatt finds it in a garden at Croyden, Aus. It has previously been collected in Australia by J. L. Boorman (cfr. Letter No. 23).

PECKHOLT, GUSTAVO, Brazil:

Hexagona variegata.

PERRIER DE LA BATHE, HENRI, Madagascar (d):

We have received from Monsieur Perrier de la Bathe another very interesting shipment (cfr. Letter No. 39). These specimens all came from the Eastern section of Madagascar.

Polyporus (Ganodermus, stipitate) dubiocochlear. Pileus with a dull, brown, smooth, not laccate crust. Context dark umber, ferruginous. Stipe short, dorsally adnate (or lateral), similar in color and crust to the pileus, tubercular, as if abortively branched. Spores 6 x 10, smooth, truncate at base. Pores minute, hard, compact. I rather suspect that this will prove to be the same as the original Polyporus cochlear from Java, if the type is ever found. It is not the same as cochlear in our pamphlet (Stipitate Polyporoids), but as we there stated, we doubted its literal correctness at the time. As to crust, color, context color, and spores, this plant agrees with the common Fomes applanatus of Europe, but the pores are smaller, harder, and similar to those of Polyporus fornicatus and mastoporus. Besides, applanatus in Europe never has a stipe. The species belongs to Section 2 of our Stipitate Polyporoids, and is the only species in this section (excepting Africanus) which does not have a laccate crust.

Polyporus (Amaurodermus) Bathei. Pileus unilateral (large specimens an inch thick, 1½ inches wide), with a smooth, dull, rugulose, subzonate crust (not laccate). Stipe (5-8 mm. thick, 3-4 inches long), with a long, rooting base, as long as the stipe, dorsally adnate. Surface smooth, dull. Context scanty, umber in old specimens. Pores very minute, cinnamon, with concolorous mouths. Spores globose, colored, smooth, 10-12 mic. in diameter. In surface, shape and stipe attachment (and these characters are of more value in this class of plants than is usually conceded) there is but one other similar species to my knowledge, viz.: Polyporus Alluandi, and it has entirely different spores. The plant is quite close to Polyporus Auriscalpium of South America, and belongs in same section (5 of Stipitate Polyporoids).

Fomes sculpturatus (cfr. Letter 39). Two specimens, both prolonged into a false stipe-like attachment behind. Spores are elliptical, 12 x 20, brown, sculptured, but I am not so sure that they are conidial, as I had supposed.—Lentinus cirrhosus.—Polystictus affinis.—Cladoderris elegans, only a form of spongiosus of Africa without the thick, spongy surface.—Lycoperdon gemmatum.—Hypomyces (Sp.) parasitic on Hirneola (?).

Polyporus (Sp.). It seems very familiar to me, but I can not place it. Also a Stereum, Polystictus, and a Panus, unknown to me as to species.

SMITH, T. L., Massachusetts (e):

Fomes pinicola, very young.—Lenzites saepiaria.—Polystictus conchifer. —Lenzites confragosa.—Polystictus pergamenus.—Polyporus caesius.— Fomes conchatus.—Fomes carneus.—Hydnum albonigrum, if any different from Hydnum nigrum, which I doubt.—Stereum complicatum.—Poria (Irpex) tulipifera.—Trogia crispa (cfr. Myc. Notes, Old Ser. p. 1).

Hydnum caeruleum, which is doubtfully distinct from Hydnum suaveolens, but a more regular and smoother plant. This is our common American form (=Hydnum cyaneotinctum Pk.).—Hydnum Nuttallii (?). Unknown to me, but I so judge from description.

STERLING, E. B., New Jersey (f):

Polyporus corruscans? The beech trees in his vicinity are largely being killed by a black beetle. On the dead trees Mr. Sterling collects, abundantly, an old fungus that may be corruscans, but more probably is cuticularis. The specimens are old, in bad condition, and I should not like to state surely which species it is. In a previous shipment Mr. Sterling sent me a fine, typical collection of the rare Polyporus corruscans.

UMEMURA, J., Japan (g):

Lenzites saepiaria.—Polyporus adustus.—Polystictus abietinus.—Polyporus arcularius? This is not exactly arcularius, but very close, too close to have a new name for these specimens.

Polyporus Mikadoi. Sessile, dimidiate, imbricate, dark, ferruginous. Surface smooth, but with appressed fibrils. Context and pores concolorous. Pores small, round. Setae, none. Spores very abundant, subglobose, 3-4 x 4-5 mic., deeply colored, smooth. This plant is so close to Polyporus cuticularis of Europe and United States, that without examination it could be taken for same species. The spores are markedly smaller, and there are no hymenial setae as found on cuticularis. It seems to be a frequent species in Japan, and I have it from four collections. Originally from T. Yoshinaga, No. 7, Tosa, Japan (cfr. Letter No. 33); also A. Yasuda, No. 6, Sendai (1910), and No. 75 (1911). This collection of J. Umemura, Okazaki, on Prunus, No. 59.

Polystictus (Section Pelloporus) subpictus. Pileus (probably cinnamon when fresh) very dark in dried specimens, smooth, umbilicate, Stipe mesopodial, bright cinnamon, minutely tomentose. Context thin. Pores cinnamon, turning darker when dried, small, 2 mm. long. Hyphae deep yellow. Spores globose, 6 mic., colored, smooth. Polystictus pictus is one of the rarest of European species. It was found by Fries at Upsala, and a collection is in his herbarium, but, as far as I know, has never been found by any one else. The French records (as well as Bulliard t. 254, cited by Fries) are errors and should be referred to the common Polystictus perennis. It is unknown from the United States. It is very close to Polystictus cinnamomeus, but differs in turning black on drying. This collection (No. 64) received from Mr. Umemura, agrees with Fries' collection of pictus in

general size and in the dark color of the dried pileus. It differs in spores which are globose, 6 mic. (elliptical, 6-8 in pictus), and in the stem which is not "slender, glabrous, attenuate," but is rather thick, bright cinnamon, and minutely tomentose, and retains its color in drying.

Polystictus (cfr. phocinus).—Fomes (cfr. gilvus?). It has setae and hyaline spores, and is close to Polyporus gilvus, but has strata of pores, hence *not* Polyporus gilvus. Unknown to me.—Irpex (Sp.).—Fomes (Sp.). —Polystictus polydactylis? Seems to me same as my photograph of type, but should be compared.—Daedalea unicolor (very?). Very close, but doubtful.

WEIR, JAMES L., Idaho (h):

A very large and fine collection made in the forests at Priest River, Idaho, an excellent collecting section, judging from the specimens. The collection embraced a number of species that rarely reach me, such as Polystictus aurantiacus, Polyporus alboluteus, and Polyporus amorphus, the latter a common plant in Europe, but very rare in this country, at least in the Eastern States. Mr. Weir's specimens of Polyporus amorphus are the first typical specimens I have seen from our country. The species is not included in our latest compilation (N. A. F.). There are several Western plants in Mr. Weir's collection that are not familiar to me. Mr. Weir also sent many collections of Porias, with which I have not as yet had time to work.

Polyporus borealis.—Polyporus albellus.—Polystictus perennis.

Polyporus tomentosus. These plants are thin and have straight setae and can not be distinguished from Polyporus tomentosus, as it grows in Sweden. The spores (and Mr. Weir sends a spore print, so there is no question) are white in mass, 4 x 5-6, hyaline. On my collection notes made in Sweden, I have the spores recorded "7 x 12, colored," but I can not confirm it from my dried specimens, and I think probably an error. In our Eastern pine regions we have a plant with a *thicker*, upper context layer. I have been calling it Polyporus circinatus, as it corresponds to Fries' Icones and differs from tomentosus, as Fries says it does. As no type is preserved of Fries' Polyporus circinatus (he found it only once), and no specimen is known even in Europe that corresponds to his Icones, it is doubtful if our American plant is the same. Our Western and Eastern plants have the same spores and the same setae and, I think, must be held to be forms of the same species. There occurs in Europe (and I have a few collections from the United States) a species that has curved setae and spores 3½-4 x 6-8, straw colored. This is called Polyporus circinatus by Bresadola and Romell, though it is usually much smaller than Fries' Icones and is pleuropodial.

Resume.—There are, therefore, three (stipitate) forms of Polyporus tomentosus: 1st (typical), with thin context, straight setae; 2d (circinatus, American), thick context, straight setae; 3d (circinatus, European and American), curved setae.

Trametes suaveolens.—Polyporus frondosus.—Paxillus atromentarius?? —Polyporus. Unnamed, as I believe. Not an Eastern species. Hymenium densely covered with setae. Closely related to Polyporus gilvus.—Bovista

Pila.—Lycoperdon piriforme.—Lycoperdon gemmatum.—Lycoperdon umbrinum.—Lycoperdon cupricum.—Polyporus picipes.—Polystictus aurantiacus.—Hydnum repandum.—Polyporus caesius.—Lycoperdon piriforme (form).—Polyporus chioneus.—Trametes (Sp.).—Lycoperdon gemmatum (form).—Polystictus perennis.—Stereum sanguinolentum.

Polyporus mollis (=Weinmanni). There are two species in Europe that are white in their prime, but spot red on the slightest touch, and turn reddish when old. One (Polyporus mollis) is a large species, dimidiate, usually two or more inches in diameter, and the surface strongly tomentose, strigose. The other, Polyporus fragilis, is small, and generally sub-resupinate, with a pileus effuso-reflexed. There is no question as to what Persoon called Polyporus mollis (Obs. p. 22), but I have long puzzled over what distinction Fries made between the two species, both from his writings and his Icones. I am forced to the conclusion that he only knew one plant under both names, and that Polyporus fragilis and Polyporus mollis, in the sense of Fries, were the same plant (fragilis). And what Persoon called Polyporus mollis, Fries called Polyporus Weinmanni.

Polyporus amorphus. Frequent in the pine regions of Europe, but very rare in America.—Stereum tuberculosum?—Merulius aureus.—Polyporus dichrous, or Gleoporus, if you wish, but not "Gleoporus conchoides Mont.," which, while often applied to this plant in American mycology, should be restricted to the thin, pale, *conchoid*, *tropical* form.—Polyporus fragilis.—Polyporus altocedronensis?—Irpex unnamed I think.—Stereum sanguinolentum (very?). "On Birch."

Polyporus lucidus, typical, except this is more obese and horizontal, and lucidus in the East is "auriscalpium" shape. I presume this is what has been called "Ganodermus Oregonensis."—Polystictus velutinus, pale and smoother form than usual.—Fomes annosus.—Daedalea unicolor.—Daldinia (Sp.).—Fomes carneus.—Polyporus. Unknown to me. Thin, soft, conchoid, white. Spores 2 x 5.—Polyporus Berkeleyi. "Common at base of old larches."—Merulius niveus.—Stereum versicolor.—Irpex lacteus.—Polyporus (Sp.).—Clavaria Ligula.—Dacryomyces (Sp.).—Spathularia flavida.—Cudonia circinans.—Clavaria inaequalis.—Polyporus alboluteus.—Chlorosplenium aeruginosum.—Polyporus dichrous. On Cedar, a rare host.—Trametes. A Western species. Unknown to me.—Fomes conchatus, very??

Polystictus versicolor, brown form very close to what Fries called Polystictus zonatus.—Peziza (Cochlearia) aurantia.—Polyporus unknown to me.—Hydnum (resupinate).—Polyporus adustus.—Lenzites saepiaria, on birch.—Irpex lacteus.—Merulius aureus, fine specimen.—Polyporus amorphus, with reddish hymenium. In Sweden amorphus occurs with white, yellow, and red hymenium. In this country in the East it is rare or absent.

Polyporus radiatus.—Merulius (Sp.).—Polystictus versicolor (on Larix, unusual host).—Hirneola auricula-Judae.—Merulius pulverulentus (=M. brassicaefolius Schw.).—Lentinus lepideus.—Merulius molluscus.—Polyporus spumeus.—Polyporus volvatus. A very large specimen, 2½ inches in diameter.—Polystictus hispida.—Trametes pini. One of the collections (the thin one) has a more strongly zonate surface than usual.—Fomes laricis.—Polyporus Schweinitzii.—Polyporus benzoinus.—Fomes pinicola.—Polyporus sulphureus, on hemlock.—Hydnum coralloides.

YASUDA, PROF. A., Japan (i):

Several of these collections are from an historical locality, "Bonin Island," from which an early collection was made by the U. S. Explor. Expedition and named in Europe.

Hydnum ochraceum.—Polyporus pubescens.—Polyporus squamosus.—Polystictus biformis, exactly the same as we have in the United States.—Polystictus pterygodes.—Trametes Dickinsii.—Stereum (Section Hymenochaete).—Lenzites (or Panus). (Sp.).—Hyphomycetes.—Polyporus (Ganodermus) lucidus.—Polyporus ostreiformis? The type from Philippines seems to be the same, according to my notes and photograph.

Hexagona bivalvis. This was named from the island of Rawak. It is same as to pores and surface, as Hexagona tenuis of the American tropics, and I have thought they were the same thing. This specimen, however, I can see is not so rigid (as tenuis), more of the Polystictus order, but if the Eastern species is held to be a different plant from our tropical American plant, it will be very difficult to distinguish them except by locality.—Apiosporum pinophilum?—Tremellodon gelatinosum.—Polyporus Mikadoi (as named in this letter, cfr. Umemura).—Polystictus vernicipes. Specimens from the type locality, "Bonin Island."—Polyporus foedatus?

Polystictus unknown to me. Probably unnamed. It is a pure white and glabrous species. Has rather large, rosy pores. It is reduced at the base and might be classed in Section 26 of my recent Stipitate Polyporoids.—Polyporus unknown to me.—Stereum. Probably "versicolor." Old.

NOTE 29. We have received from Mr. E. B. Sterling, Trenton, N. J., very large specimens of Polyporus Berkeleyi. These specimens weigh respectively 19 and 24 lbs. each. Polyporus Berkeleyi is the largest species of Polyporus we have in the United States, and attains a greater size than the similar plant, Polyporus giganteus, notwithstanding the name of the latter.

Owing to its large size it is strange to me that it is not referred by Mr. Murrill to Polyporus colossus. It has as much resemblance to Polyporus colossus as the plant that he has so referred, as neither of them have any resemblance to it whatever, except in being "large." This process of guessing at the identity of a plant from the name ordinarily has not much to commend it, but after visiting the museum where the type is preserved, then to come home and make such a "break" only illustrates the "scientific" value of the superficial work that is done on these cursory visits.

Mr. Sterling also sends me two very fine photographs of the species as it grows, but they are about the same as the photographs that we have previously published (Fig. 362) of this species in Myc. Notes Pol., Issue p. 37.

NOTE 30. Polyporus Chaperi (Amaurodermus). A specimen received from G. Peckolt is the second specimen known. This is a finer specimen than the type at Paris. The surface is rugulose zoned, but glabrous. Color reddish brown. Stipe mat with sterile branches as in the type. This species has a structure that I did not note when I examined the type. The fibrous tissue of the tubes consists of long deeply-colored pointed hyphae, the ends often projecting into the tubes and appearing like colored setae of other species. I have noted a similar structure in Fomes pachyphloeus, but if this is a character of the type specimen of Polyporus Chaperi (and it must be if this is correctly named), I did not notice it. Spores are globose, smooth, pale colored, 10-12 mic.

NOTE 32. Irpex coriaceus is a plant of the American tropics said to have several synonyms. The teeth have a peculiar, greenish olive color by which it is known at once. Rev. Rick distributes it as Poria portoricensis, which was named, I think, from the description, as I have never found any type at Upsala, though there may be a cotype at Berlin. Hydnum trachyodon, as guessed in Saccardo, is the same thing (type at Paris).

NOTE 33. **Fomes fasciatus.** In a letter from Mr. Romell, March 15, 1912, he writes me that "neither Prof. Lindman, the present Intendant of the botanical collections at the Riksmuseum in Stockholm, nor Dr. Malme, nor Prof. Juel, who have also been working there, know anything of the fungi collected and described by Swartz. A search was made for them some years ago, but without result. Some of the collections are, however, scarcely accessible now from want of space, so that a thorough search can hardly be made at present, but must be deferred until the new, more spacious building is ready.

I was recently told that some of Swartz's species are represented in Thunberg's herbarium at Upsala; viz., Boletus fasciatus, hydnoides, villosus, but Boletus supinus does not occur there, I am informed.

What you sent me seems to be young specimens of the species which I refer to under the name of Fomes plebeius in Hymen. austroameric. And if Swartz called it *Bol. supinus*, his name can hardly be accepted, as it means resupinatus, a condition which is by no means characteristic for this species.

As to Bol. fasciatus, of which you told me in another letter that a specimen so named in British Museum is identical with Fomes subfomentarius, I can now report that Prof. Juel has compared Fomes subfomentarius with the authentic specimen of Bol. fasciatus, which occurs in Thunberg's herbarium, and he says that the two are *distinct*, Bol. fasciatus being a flat, thin species, about 4 mm. thick, with no tinder, upper surface radially striate, with black concentric zones. Thus, if the specimen at British Museum is really my Fomes subfomentarius, the name Boletus fasciatus seems to cover two species."

The specimen in the British Museum, I am quite sure, is the same as marmoratus of Berkeley or subfomentarius of Romell. Mr. Romell seems to lay stress on the specimen in Thunberg's herbarium and is not disposed to accept fasciatus as a name for the species. It seems to be one of those cases where the history of the naming is clouded from the fact that the author himself did not know his own species.

NOTE 34. Fomes graveolens, odor of it.

We made a note, number 19, regarding the "odor" of Fomes graveolens from a statement made by O. M. Overholts, who collected it fresh, and stated that he was unable to note any fragrance. It has always had a general reputation of being a fragrant species. We have recently had a letter from Mr. James R. Weir, who writes as follows:

"Every farmer in this region knows Fomes graveolens by its sweet odor. This is an assured fact. I have often collected it in this condition. The old specimens sometimes retain their odor."

NOTE 35. **Polyporus radiatus.** Mr. Romell, in a letter written me on May 19th, is very positive that the spores of this species are hyaline. He states that his previous observations, when he had supposed them to be colored, were due to his mistaking them for Polyporus vulpinus. Bresadola published that the spores of Polyporus radiatus are faintly colored. I have never observed them in mass, but they appear to me hyaline under the microscope.

NOTE 36. "Polyporus flavo-virens." It is well established that Polyporus flavo-virens, which is a rather frequent plant in America, is same as Polyporus cristatus of Europe (cfr. Syn. Section Ovinus, p. 80). Worthington G. Smith, in Vol. 1 of the British Mycological Society's Transactions, records Polyporus flavo-virens as a British plant, but from the spore size that he gives (7-8 x 15-18), it is not possible that it is correctly determined. Without the specimen it is impossible to say what Mr. Smith has so identified, but the probabilities are that it is Polyporus Pes-caprae, which is a similar species as to color with spores such as he gives.

NOTE 37. **Polyporus frondosus and Polyporus intybaceus in England.** Although these two species are carried in most of the mycological books of Europe, I have never been able to find but one plant and have about reached the conclusion they are synonyms. There is a very common plant throughout Europe as well as America that is undoubtedly Polyporus frondosus in the sense of Fries, but I can not locate Polyporus intybaceus as a different plant. From Fries's records intybaceus seems to have been a very rare plant which he collected at but one locality in Sweden (Halland), and hence it can not be the common plant that every one finds in Sweden and which is known in English tradition as Polyporus intybaceus.

Mr. Carleton Rea writes me: "I have always thought I could distinguish between frondosus and intybaceus. The former has punctate spores 5 x 6 mic., the latter smooth spores, 3 x 6-7 mic." I feel that Mr. Rea's reference to Polyporus intybaceus with smooth spores should be Polyporus frondosus, but what the plant is that he calls frondosus with punctate spores, I do not know. The only plant in Europe to my knowledge with punctate (or tubercular) spores is Polyporus montanus, but it does not seem possible to me that it has been confused with frondosus.

NOTE 38. **Polyporus colossus.**—The type specimen of Polyporus colossus is in a jar at Upsala. It has typical Ganodermus spores, which are so abundant in the specimen that it is impossible to make a microscopic mount without seeing hundreds of them. They are elliptical, deep colored, and are truncate at the base. Patouillard has decided that Polyporus colossus is a new species and calls it Polyporus obokensis, but that is another story.

Mr. Murrill after visiting Upsala, where the type is preserved, came back home and had the assurance to publish that he had discovered Polyporus colossus to be a "new genus" that he characterized as having globose, hyaline spores, 4 mic. in diameter. These spores have about as much resemblance to those of Polyporus colossus under the microscope as a billiard ball has to an eel.

The plain truth is (probably) that after visiting the museum where Polyporus colossus is preserved, that he knew nothing more about its identity than he did before he made the visit, and on receiving specimens from the tropics (probably Polyporus Talpae) which were large, he thought they were Polyporus colossus, from the name. On this vague data he proceeded to erect a "new genus," which he calls "Tomophagus." The genus would have been more appropriately named had it been called "Tommyrot."

NOTE 39. **Hirneola Auricula-Judae.**—I have just made comparisons of the large amount of material of the genus Hirneola that has accumulated at the museum, and I am forced to the conclusion that there is really but one wide-spread species. It takes several forms. The thin form of the temperate region is Hirneola Auricula-Judae typically, and

the thick form of the tropics is Hirneola polytricha. Usually the hymenium has a purplish cast when dried, but specimens often reach me where the hymenium is brown. I do not consider this as of any specific value, as specimens lose the purplish cast when they are moistened. As to spore measurements, there is a little variation in size, but they are essentially the same. It is a very common species in every country of the world, and the slight variations found in different locations are remarkable when the distribution of the species is taken into account.

As to the genus, we believe the genus Hirneola should be maintained and not merged into Auricularia, as is the tendency with modern writers. Hirneola has its hymenium superior and Auricularia has its hymenium inferior, and the position of the hymenium has always been held to be of generic importance in the Friesian system. Since Brefeld's classical work was published on the basidia of the tremellaceous plants, it seems that modern classifiers can see no characters in this class of plants except the basidia.

NOTE 40. **Lentinus dactyliophora.**—I receive this frequently from the East and Africa, and it is evidently the most common species of Lentinus in these countries. It is light yellow color, smooth, has narrow yellow gills, and the remnant of a veil is quite evident on most specimens. It is without question Leveille's species which he well illustrated, but it probably has other names, as most of Leveille's "new species" have. I have never worked over the foreign Lentinus in the museums, and while there have been about a hundred "new species" discovered, most of them will probably prove to be synonyms.

NOTE 41. **"Fomes torulosus.**—This species belongs teste Lloyd, Myc. Notes, Polyporoid Issue, No. 3, p. 48, to Fomes fusco-purpureus Boud. Spores globose, hyaline, 4 mic. in diameter. In Fomes rubriporis Quèlét, the author himself indicated the spores as ovoid, 5 mic. long, pale fulvous. Is it a different species?"—Sacc. Sylloge Fungorum, Vol. 21, p. 294.

No, it is not a different species. The spore discrepancies are due simply to inaccurate work on the part of Mr. Quèlét. Boudier was the discoverer of this species, and he sent it to Quèlét under the manuscript name Fomes fusco-purpureus. Before he had a chance to publish it, however, Quèlét came out and published it as Fomes rubriporis. This proceeding was a little indelicate, not to say a word more severe, but as Quèlét originally received the specimen from Boudier, and as Quèlét himself has acknowledged fusco-purpureus is a synonym for rubriporis and claims the validity of rubriporis on account of priority (and he might have added, a little rascality), we think it is not worth while at this late date to question the synonymity of the two species on the strength of spore discrepancy.

NOTE 42. **Thelephora pedicellata.**—We have in this country a plant known under this name, which of course is no Thelephora in the modern sense of the genus, and which differs from most fungi in not being saprophytic on its host, neither is it parasitic, although it grows on the living stems. The genus is called in Europe now Septobasidium, based on some abstruse anatomical character, and in a conversation that I had with Professor Petch, of Ceylon, he told me that the genus was quite common with him and probably the same species we have in the United States. According to his investigation the young plant starts from a scale insect. Prof. Petch has written a paper on the subject some time recently, but I have not seen it. The subject has been brought up by some specimens having been recently received from Prof. John Dearness, London, Ont., concerning which Prof. Dearness writes me: "This occurs with me on Cornus. It is associated with aspidium, or an allied scale insect."

NOTE 43. **N'abusez pas du microscope.**—The introduction of the microscope into modern classification of fungi is very popular because it changes fundamentally the names of the old system. Except the advantage in making new names, we think it is of doubtful utility and that its use would in general be better in the subdivision of the old genera. The Friesian system of classification, based on macroscopic characters that are obvious to the eye, is certainly the simplest and generally the most practical and best way of classifying fungi. Under the system one can tell a Stereum as soon as he sees it. Under the modern method, one has to take it home and look at it under the microscope, to see if it is a "Stereum," "Hymenochaete," or "Lloydiella." The microscopic characters may be a convenient method of subdividing the genus Stereum, but it appears to me to be straining a point to base genera on the characters of the hairs of the hymenium whether you call these hairs setae, metuloids, or cystidia, and is in principle the same and just about as logical as it would be to classify mammals by the nature of their fur coats.

We would not have it inferred, however, that we decry the use of the microscope when it reveals fundamental differences, as the nature of the basidia or essential organs. While we believe this is carried to excess at the present day, in principle it is right. But to base a genus on every shape and kind of hair that the microscope reveals on the hymenium is only an abuse of microscopic characters.

NOTE 44. **"Xylaria" fiabelliformis.**—I am quite familiar in our woods around Cincinnati with a conidial plant that passes in our literature as "Xylaria" fiabelliformis. I get the same plant from Africa. It was named and figured by Schweinitz, who claimed that it was "rarely fertile." Ellis referred it as a conidial form of Xylaria corniformis, but I think without any evidence, and I do not believe it has anything whatever to do with any Xylaria. I have often seen it, and watched it to see if it develops into a "Xylaria," which is quite improbable. I never have found any perithecia. Peck in his early day described it as a "new species" Thelephora rosella. The last time I was at Albany I had a good laugh with him over it, for he has long since learned that it is no species of "Thelephora" either new or old. All we can say at the present time is that it is a mystery and should be classed with Isaria until its perfect form (if it has one) is found out.

LETTER No. 44.

Report on specimens received since October 15th. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority," in event they desire to use the same. All specimens are acknowledged by private letter as soon as they come into my hands. Foreign correspondents can send specimens to my English address and they will reach me promptly, although in countries where there are direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
c/o Mr. S. A. Skan,
37 Holmes Road,
Twickenham, England.

January 15, 1913.

BALLOU, W. H., New York:

Trametes protracta (=Trametes form of Lenzites saepiaria).—Polyporus spumeus.—Polyporus salignus.—Fomes annosus.—Irpex pachydon, nice specimen.—Polyporus confluens.—Hydnum ferrugineum.—Fomes carneus.—Trametes sepium.—Polyporus sulphureus.—Hydnum (=H. albonigrum, same thing as far as I can make out).—Hydnum scobiculatum.—Hydnum aurantiacum.—Fomes pinicola.—Polystictus circinatus.—Polyporus Oerstedii (=Ganodermus sessilis).—Poria odora.—Thelephora terrestris.

Hydnum spongiosipes. This plant grows in Europe and is known to the French botanists as Hydnum velutinum (cfr. Gillet's excellent figure), but whether it is Hydnum velutinum of Fries' description and figure, cited (Bulliard t. 453), is quite a dubious question.—Polystictus focicola.—Tremella lutescens.—Lenzites trabea.—Hymenochaete Curtisii. (Burt's determination).—Stereum rubiginosum.—Hydnum Blackfordae. (Determined by Peck. A very rare species.)

BROCKES, DR. ANNA, Brazil:

Lenzites repanda.

BURNHAM, S. H., New York:

Polyporus radicatus.—Tremella vesicaria. The first dried specimen I have gotten of this species which is a typical Tremella as to structure.

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JAN 2 0 1942

The spores are subglobose or piriform, 3-10 x 12-14 (not "oblong curved," as recorded by Morgan, which is rather the spore of an Exidia than a Tremella).—Fomes connatus.—Hydnum coralloides.—Hydnum pulcherrimum.—Polyporus adustus.

CHEESMAN, W. N., England:

Polyporus varius.—Polyporus elegans.—Polyporus brumalis.—Polyporus chioneus.—Stereum hirsutum?—Polyporus amorphus.—Merulius tremellosus.—Trametes Bulliardii.—Trametes cervinus.—Corticium caeruleum.—Polyporus rutilans.—Radulum quercinum.—Merulius pulverulentus.—Odontia fimbriata.—Polyporus amorphus (white hymenium).—Lenzites betulina.

CRADWICK, W., Jamaica:

Schizophyllum commune.—Stereum (Sp.).

DAVIS, SIMON, Wyoming:

Calvatia defodiodis. (See Note 45).—Lycoperdon caepiforme.—Trametes hispida.—Catastoma subterraneum.—Calvatia lilacina var. occidentalis.—Tylostoma albicans.—Tylostoma subfuscum.—Tylostoma rufum.—Bovista plumbea, very robust form.—Bovista pila.—Mycenastrum Corium.—Lycoperdon caepiforme. Large specimens.—Crucibulum vulgare.—Geaster mammosus.—Geaster asper.

DONOR UNKNOWN, Queensland:

Specimens were sent in a bag packed in excelsior. They were a nice lot and I regret I could find no clue to the sender.

Lenzites repanda. — Polyporus grammocephalus. — Polystictus sanguineus.—Hexagona tenuis.—Stereum versicolor.—Fomes igniarius. The context is not quite as dark as the European plant.

EDWARDS, S. C., California:

Fomes annosus.—Fomes (or Polyporus) carneus.—Polyporus Schweinitzii.—Poria pereffusa?—Polyporus fragilis?—Polystictus biformis.—Hydnum rufescens.—Stereum spadiceum.—Polystictus versicolor.—Polystictus versicolor. Very unusual and marked form. Three forms, one of them so different from the usual form that it well merits a distinctive name, were it practical to name the various forms of this polymorphic species.

FARLOW, W. S., Massachusetts:

Bovistella (unnamed species). Capillitium of Bovista form, but hyaline and more flaccid, thick branches than the usual type. From California.—Geaster saccatus from Jamaica.—Bovistella (sp.) from Jamaica.—Scleroderma tenerum from Jamaica.

GEHMAN, JOHN, Michigan:

Fomes leucophaeus. A very anomalous specimen (ungulate) of a very common species.—Irpex lacteus.—Lenzites saepiaria.

GRELET, REV. L. J., France:

Fomes fraximeus.—Polyporus Schweinitzii.—Polyporus versicolor.—Polyporus versicolor, pale form.—Polyporus versicolor, resupinate.—Polystictus ochraceous.—Polyporus adustus.—Polystictus perennis.—Polyporus rufescens.—Polyporus lucidus.—Fomes torulosus (=rubriporus and fuscopurpureus). Sent as Fomes pectinatus (cfr. Note 61).—Merulius tremellosus.—Lenzites betulina.—Hydnum amicum.—Lycoperdon umbrinum.—Lycoperdon atropurpureum.—Lycoperdon gemmatum.—Scleroderma Cepa.—Scleroderma verrucosum.—Scleroderma tenerum.—Polyporus chioneus.

GRIFFIN, D. B., Vermont:

Stereum diaphanum. This is one of the rarer species.—Fomes pinicola.—Polyporus admirabilis.

HINSBY, GEO. K., Tasmania:

Mr. Hinsby has a very favorable location for fungi, as there is a rainfall of 120 inches per annum, and he advises me it is difficult to make a trip to the Bush without getting wet. In a location so favorable as this, fungi must occur in great abundance, although it is, no doubt, difficult to collect them under these conditions.

Polyporus portentosus. A fine specimen and of much interest as the first good one I have ever seen. It is a species quickly destroyed by insects, and the type at Kew is almost gone. A good account of it was given in Cooke's Handbook. It has a smooth, thin, yellowish crust, and the context is white, brittle, chalky. A very distinct species when once known, and I am glad to get a clear knowledge of it.

Polystictus? Material scanty. —Polystictus sanguinarius. In quantities. —Polystictus nigricans. I think this is the same plant that was distributed in Rab. exsiccata as Polystictus nigricans. Downy, pubescent when young; dark, almost smooth when old. In reality a form of versicolor.

JACKSON, A. BRUCE, England:

Fomes applanatus.

JONES, KATE A., New Hampshire:

Daedalea confragosa.—Trametes rubescens.—Polystictus perennis.—Polystictus conchifer.—Lenzites saepiaria.—Fomes pinicola.—Fomes leucophaeus.—Polyporus elegans.—Panus stipticus.—Stereum fasciatum.—

KILLGORE, ANTHONY, New Jersey:

Fomes pomaceus.—Reticularia Lycoperdon.

KRIEGER, L. C. C., California:

Podaxon Farlowii (See Note 46).—Polyporus sulphureus.—Scleroderma Cepa.—Calvatia lilacina var. occidentalis.—Polysaccum pisocarpium. A beautiful specimen.—Lycoperdon pusillum.—Lycoperdon cepaeforme.—Catastoma circumscissum. This is the small spored "species," not the usual large spored "species" (Catastoma subterraneum) of the West.—Bovista

plumbea, young.—Stereum. Close, but seems different from albobadium. —Polyporus corruscans. (See Note 47).

KUYPER, J., Surinam:

Fomes fasciatus, applanate specimens.—Polyporus (Ganodermus) Oerstedii. An extremely variable plant.—"Daedalea" Sprucei (See Note 49).

LANGTON, THOS., Canada:

Helvella ephippium.—Tremellodendron? (Sp.)?—Hydnum cyathiformis. —Stereum spadiceum.—Trametes protracta.—Polyporus radiatus.—Polyporus fragilis?—Polyporus carneus.—Thelephora terrestris (=laciniatus).—Polystictus cinnamomeus.—Hirneola auricula-Judae.—Stereum (Hymenochaete) tabacinum.—Clavaria Ligula.—Hydnum ferrugineum?—Hydnum. I do not know this species.—Thelephora palmata var. Americana.—"Ozonium aureum."—Hydnum caeruleum (=cyaneotinctum).

LEEPER, B., Ohio:

Tremella vesicaria. Rarely received. Also a photograph of the fresh plant.—Tubulina fragiformis (or Tubifera ferruginosa, which is the latest juggle).

LEGERE, L., India:

Clavaria pyxidata.

MAIRE, R., Algeria:

Polyporus spumeus.—Lenzites saepiaria, polyporoid form =Trametes protracta Fr. Icon. cfr. Letter 39, Note 24.

NOBLE, MRS. M. A., Florida:

Fuligo septica.—Polystictus focicola.—Polyporus gilvus. Very thin form.

O'CONNOR, CHAS., Mauritius:

Anthracophlous rhizopognoides. A nice collection received fresh in formalin. The fresh plant has a distinct, thick, reddish peridium, 1 mm. thick, with external fibrils. The gleba is white. The cells and spores are similar to Rhizopogon rubescens, as is the plant, excepting its thicker peridium.—Hydnangium (Sp.). Received fresh in formalin.

OLESON, O. M., Iowa:

Polyporus fumosus.—Hydnum ochraceum.—Irpex lacteus.—Polyporus corruscans. (See Note 47).—Polystictus pergamenus—Fomes leucophaeus. Thick, ungulate specimen. Usually a more thin species. This specimen has no context development above (as usual) the pores reaching the crust. Also it has thin context layers between the pore layers. Such is what Fries is supposed to have called Fomes vegetus, but it is only a condition of the usual plant.

Polyporus salignus.—Stereum sericeum?—Polyporus fumosus. With

pores large and unequal, unusual, but due, I think, to drying.—Fomes Ohiensis.—Polyporus gilvus. A thick, obese, hard form.—Trametes malicola. —Polyporus fumosus.—Polyporus spumeus. The context of this specimen is rather soft and spongy, and that of specimens I collected in Sweden is hard as a rock, yet I think they are undoubtedly the same thing.

Fomes conchatus. A thick, ungulate plant very different in general appearance from the usual thin, conchoid plant. But with everything else, surface, pores, context color, spores, and hymenial setae exactly the same, it must be so referred.—Fomes annosus.—Stereum versicolor.—Polyporus gilvus.—Polystictus cinnabarinus.—Trametes hispida.—Daedalea confragosa.—Hydnum ochraceum.—Polyporus dichrous.—Polystictus versicolor.—Polyporus brumalis.—Guepinia spathulata.—Polyporus adustus.—Polyporus resinosus. Fomes leucophaeus.—Daedalea unicolor.—Peziza aurantia.—Lenzites betulina.—Polystictus hirsutus.—Boletinus porosus.—Panus stipticus.

PARISH, S. B., California:

Podaxon Farlowii. A fine collection made in the Salton Bottom. (See Note 46).—Phellorina macrospora. (See Note 50).—Pleurotus nidulans.

PATTERSON, FLORA W., Washington, D. C.:

Phallus imperialis. Eggs from Richmond, Va.

PECK, PROF. CHAS., New York:

Polyporus dryadeus. A rare plant in the United States. Prof. Peck finds it on elm. In Europe, it usually grows on oak.

PECKOLT, GUSTAVE, Brazil:

Lentinus villosus.

PERRIER DE LA BATHIE, HENRI, Africa:

Polyporus (Amaurodermus) rugosus. Fine specimens and the first I have received from Africa. The plant is not exactly same as those from the East Indies, but too close to separate. The surface is more mat, spores (12 mic.) are slightly larger, and not so deeply colored.—Stereum versicolor. —Polystictus affinis. Many infected with a yellow parasitic species of Hypomyces.—Hypomyces (Sp.) on Polystictus affinis.—Ganodermus mastoporus. —Cycloderma fusca (cfr. M. N., p. 487). A very abundant collection.—Polystictus sanguineus. "Commun dans toute l'ile"—as it is in every tropical country in the world.

Polystictus vellereus. This proves to be quite a frequent plant in the East and Africa and is an analogue of pinsitus of the American tropics. It is the same as Hennings has named cryptomereae from Japan, under which name I have heretofore determined specimens. Sometimes it is reduced at the base and then I think it is same as pocos of Berkeley.—Polyporus antilopus.—Calvatia longicaudum. I only receive this species from Africa.

Hirneola squamosa (as Auricularia). This is the most interesting specimen in this lot. Very rare and in Africa only, I judge. This is the first specimen I have gotten. In fact I never saw it except the type at

Paris. The genus Hirneola (with hymenium superior) I would keep distinct from Auricularia (with hymenium inferior).—Hirneola polytricha.—Polyporus favoloides. This African species is so close to Favolus Brasiliensis of the American tropics, excepting in its smaller pores, that it might be held as only a small pored form of it.—Lenzites repanda.—Polystictus caperatus.—Lentinus cirrhosus.—Schizophyllum commune (4 collections).—Polyporus fusco-maculatus. Seems to be same on comparison as type from Samoa.—Polyporus pruinatus.—Polyporus gilvus, three collections.

Also several specimens of Stereum, Panus, Marasmius, etc., species unknown to me.

REA, CARLETON, England:

Glischoderma cinctum. (See Note 52).

ROMELL, L., Sweden:

Stereum versicolor. (See Note 53).

ROPES, WILLIS H., Massachusetts:

Calvatia rubroflava.—Phallus duplicatus.

SCARFE, W. A., New Zealand:

Three species of Peziza, a family I have never studied, also a Stereum.

SCHESTUNOW, N., Russia:

Polystictus hirsutus, var. lutescens.—Polyporus adustus.—Polyporus Boucheanus.—"Polyporus incendiarius."—Polyporus lucidus.—Fistulina hepatica.—Polyporus rutilans.—Thelephora biennis.—Trametes hispida.

Polystictus pergamenus, form lutescens. This is rare or absent from Western Europe, but occurs in Eastern Europe and is very common in America. This is more yellowish, but otherwise same as usual plant.—Scleroderma tenerum.—Irpex lacteus, young.

STOCKER, S. M., Minnesota:

Polystictus hirsutus.—Polyporus betulinus.

SWANTON, E. W., England:

Bovista nigrescens.—Polyporus fragilis.—Calvatia saccata.—Fomes annosus, on chestnut—Lycoperdon pratense. Sterile base, evidence that the plant is better called Calvatia pratense.—Lycoperdon gemmatum.—Lycoperdon umbrinum.—Lycoperdon cruciatum.

WEIR, JAMES R., Montana:

Auricularia mesenterica (See Note 54).—Daedalea confragosa (See Note 55).

Dacryomyces aurantia (as Tremella). A beautiful specimen. This is a bright, orange, cerebriform species resembling Tremella mesenterica, but has the (forked) basidia and septate spores of Dacryomyces, hence must be so classed. Most Dacryomyces are small, tubercular plants. This is the only large Tremella-like species of my knowledge.—Lycoperdon atropur-

pureum.—Cantharellus cibarius.—Cantharellus clavatus (See Note 56).—Hydnum imbricatum.—Cyathus striatus.—Polyporus griseus.—Diatrybe bullata, named by Mr. Weir.—Mycenastrum Corium.—Pleurotus serotinus.—Xylaria digitata.—Trametes, unknown to me.

Ganodermus Oregonensis, surely, but only an obese, horizontal form of Polyporus lucidus. It has same color, surface, context, pores, and spores.—Trametes hispida, small pored form.—Hydnum caput-ursi.—Cantharellus floccopus.—Polyporus alboluteus.

Hydnum aurantiacum. Notwithstanding this is fragrant, and the aurantiacum of record is "inodorous," I think we shall have to consider this a fragrant form.—Polyporus caesius?—Polyporus picipes.

Merulius squalidus, "purplish when young." I have collected this same species in Sweden, characterized by a distinct purplish color ("incarnato," Fries called it) which disappears entirely from the dried plant. It is very close to lacrymans.—Merulius molluscus.—Trametes protracta. Finely developed.—Polyporus. Evidently similar to fragilis and mollis in its general nature, white, turning red, but quite different in its spores, 3 1-2 x 7-8.

Polyporus albidus. It seems to me exactly the same as European specimens, where it is frequent on Pinus species. Seems more rare in this country.—Trametes variiformis. The first collection I have ever received and the only time I have seen it excepting the types at Albany. It is not a synonym and has little resemblance to Trametes serialis of Europe as erroneously compiled by Murrill.

WHETSTONE, DR. MARY S., Minnesota:

Stereum rufum as found in Fries, but the genus is not a good one for it.—Helotium citrinum.—Hydnum aurantiacum.—Daldinia concentrica.—Daldinia vernicosa.—Boletinus porosus.—Peziza occidentalis.—Thelephora laciniata.—Polyporus gilvus.—Hydnum nigrum.—Thelephora palmata.—Polyporus dichrous.—Tylostoma campestris.—*A stipitate Scleroderma* (See Note 57).

Specimen unknown to me even as to genus. From its spores, I suppose, it is a Thelephora, but in its habits, texture, and everything else, it is entirely different from any Thelephora known to me.—Polyporus albellus.—Tremella vesicaria.—Polyporus obtusus (See Note 64).

Ptychogaster? Something unknown to me. Probably a conidial condition of something. Has the general appearance of Ptychogaster albus (cfr. Old Spec., p. 31), but I find no spores which are so abundant on Ptychogaster.—Polyporus nidulans.—Stereum spadiceum.—Lenzites saepiaria.—Polystictus hirsutus.—Helvella elastica.—Cordyceps herculea. Young.—Irpex lacteus.—Polyporus adustus.—Lenzites trabea.—Trametes hispida. Not well developed.—Lenzites confragosa.—Fuligo septica.—Tremellodendron pallida.—Thelephora multipartita.—Scleroderma Cepa.—Polyporus obtusus (See Note 58).—Reticularia Lycoperdon.—Polystictus biformis, very unusual, irpicoid form.

WOULFF, E., Russia:

Battarrea phalloidea. This is a rare species in Western Europe, known from but one locality of France and from only a few of England. The

Russian specimen sent by Mr. Woulff agrees exactly with the original plant from England. Another species, Battarrea Stevensii, is based on an old figure by Pallas from Russia. While it is much larger and more robust than the English plant, it is well established that it is only a large form of it.—Polyporus Schweinitzii.—Polyporus hispidus.—Polystictus versicolor. —Polyporus adustus.—

Genus unnamed (I believe). A gasteromycete closely related to Secotium. The spores are globose, 4 mic. There are no permanent cells or columella as in the genus Secotium, but remnants of the trama plates remain. It has no capillitium.—Polystictus hirsutum, var. lutescens.—Panus rudis.—Fomes fomentarius.—Polyporus mollis (=P. Weinmanni).—Calvatia saccata?—Fomes roburneus? (See Note 58).

YASUDA, PROF. A., Japan:

Polyporus Yasudai (See Note 59).—Hydnum nigrum.—Craterellus cornucopiodes.—Irpex lacteus.—Calvatia lilacina.—Polysaccum pisocarpium. —Polyporus confluens.—Trametes Bulliardii. Scrupose form (Sp. See Note 55).—Septobasidium (Sp.) (cfr. Note 42, Letter 43).—Polyporus Cumingii. —Polystictus. Species not recognized by me. Calvatia Gardneri.

Also several Clavarias which I do not know as to species.

NOTE 45. **Calvatia defodiodis.**—Peridium oblong, white, smooth, with a short, rooting base. Sterile base none. Gleba pale olive. Capillitium very scanty, of cob-webby threads, hyaline, branched, flaccid, 5 mic. in diameter. Spores pale colored, subhyaline, smooth, mostly globose, 4-5 mic., some oval and some piriform.

This is a most curious little puff ball found by Simon Davis, on a high altitude at Meeteetse, Wyoming. It measures about 2-3 cm. high by a cm. thick. It grew imbedded in the (evidently sandy) soil with only the tip projecting, and Mr. Davis writes me "was very difficult to find, owing to its strong resemblance in shape and color to a small, white stone." It is an anomalous species in the genus Calvatia, nothing in fact very similar, and might be considered as a new genus. It differs from all other species not only in its habits and small size, but in its absence of sterile base and very scanty capillitium. Its dehiscense is unknown to me, though I think the peridium evidently breaks up in the manner of a Calvatia.

NOTE 46. **Podaxon Farlowii.** From L. C. C. Krieger, California. Collected by G. P. Rixford, Topeck, Arizona. Two collections quite different in general appearances, due to age and development, but both the same species, which is the only one known in the United States. S. B. Parish, who has recently explored the eastern part of the Colorado desert, writes me that "Podaxon Farlowii is by no means rare throughout the region, growing in depressions in clay or loamy soil, where for any reason a little water has stood and evaporated. In such a place one can almost count upon finding it."

NOTE 47. **Polyporus corruscans.**—Received from L. C. C. Krieger, Chico, Cal., and O. M. Oleson, Iowa. A rare plant and one that is imperfectly known in our "literature." When young, it is soft and "fulvous," and in this condition was well described by Fries as Polyporus corruscans. I found it at Upsala on his favorite collecting grounds, agreeing exactly with his description. When old it becomes indurated and context more red (such as specimen recently received from L. C. C. Krieger, Chico, Cal.). There is a drawing in Fries' collection, which Fries made from a specimen he found at Salmybody, near Upsala, and labeled in his own writing, "Polyporus fulvus," not recognizing it as the old condition of his own Polyporus corruscans. Bresadola has recently based a "new species" Polyporus Friesii on this.

This is not the drawing, however, that was reproduced (posthumously) in Fries' Icones T. 184, as Polyporus fulvus. The latter drawing was made by Linquist at Femsjo, and may and may not represent the plant. If it does, it is very inaccurate.

Polyporus corruscans is very imperfectly known both in Europe and America. In this country it has been called Polyporus dryophilus. In Europe I have collected it at Berlin and have specimens from near Paris, but Polyporus corruscans does not figure in either French or German records as far as I have noted.

NOTE 48. **Exidiopsis alba.**—We have a very common, tremellineous plant occurring in the United States that is pure white and which has been known in all of our litera-

ture as Tremella albida, one of the traditions of mycology and just about as true as many traditions are.

The name "Tremella albida" originated in England, at least is ascribed to Hudson, but the species really rests on a good picture that is published in the English botany, under this name a hundred years ago. Brefeldt showed that the plant was an Exidia and not a Tremella, and the English plant has since been called "Exidia albida (Hudson), Brefeldt." I have always puzzled over why our American plant, "Tremella albida," should be called Exidia, for our plant is not an Exidia either in its spore or papilla characters.

Two years ago, while working at Kew, Mr. A. D. Cotton kindly gave me a specimen of the English plant, agreeing exactly with the illustration in the English Flora. I saw at once it was not the American plant, but quite different in many respects, and studying the structure of the American plant, I find it does not belong to either the genus Tremella or Exidia, but should be classified in a genus recently brought out in Europe, Exidiopsis. It is marked by having numerous cylindrical, dark bodies imbedded in the hymenial tissue, but not projecting beyond the surface or but slightly. These bodies are filled with granular material and are darker than the other hymenial elements. A drawing that was kindly prepared for me by Miss E. M. Wakefield, will show this character in a graphic manner. These bodies are called cystidia in the genus Exidiopsis, but they should really have a special name. They call everything cystidia in the nature of hairs or protuberances or spines or paraphyses, or anything else excepting basidia they find on the hymenium. These bodies in Exidiopsis alba are about the same as Karsten, called gleocystidia.

Exidiopsis alba.—Pure white, drying discolored. Form cerebriform, when well developed subfoliaceous, caespitose, covering large areas of rotten logs. Basidia globose, cruciate divided, with long sterigmata. Spores obovate, 6 x 10 mic., apiculate, hyaline, smooth. Imbedded in the tissue, but not projecting beyond the surface, are numerous cylindrical, dark bodies, filled with granular matter and darker than the other hymenial elements.

This is the most abundant tremelloid plant that we have in the United States, and the only large, white one. It often covers large areas of rotten logs in moist woods. It seems to require wet, soggy wood for its development, and is never found by me on branches. When in its prime it is pure white, but discolors when old and in drying.

NOTE 49. **"Daedalea" Srucei.**—From J. Kuyper, Surinam. These specimens are a better Lenzites. Apparently, from the numbers at Kew, a frequent plant in South America, but these are the first I have received. Spores are globose colored, 10 mic. smooth, hence it forms a "new genus." Not at all a usual Daedalea or Lenzites, which have hyaline spores.

NOTE 50. **Phellorina macrospora.**—From S. B. Parish, Southern California. I previously had the opinion that Phellorina was probably a monotypic genus as the various named species seem to me very much the same, and all have same spores, globose, 5-6 mic. in diameter. This plant has very large spores, 16-18 mic.

Mr. Parish found but one (immature and not well developed) plant at Mecca, Colorado desert. In addition to the large spores of this plant, it is of much interest as the genus is of the greatest rarity in the United States.

This is the fourth collection of the genus known in the United States. An old peridium (now in Albany) was sent Peck from Mohave desert (May, 1882) by Mr. Parish, and called Phellorina Californica. Mr. Long collected it abundantly at Meridian, Texas, in May, 1901, but most of his specimens were burned. An old one, however, is in my museum. P. B. Kennedy, Reno, Nev., in 1903 found and sent me a specimen that was picked up in a coal pile in his cellar. Its source is unknown.

The only well-known species is Phellorina Delastrei, of North Africa, of which we have abundant and fine collections. Our previous American collections have same spores and are probably the same as the African plant, but we would not be justified in so stating definitely on the basis of either of the scanty American collections thus far made.

NOTE 51.—**Sparassis,** unnamed species, sent by Mr. James R. Weir, Montana. When I first saw this specimen from Mr. Weir, I thought it was a fine, large specimen of Tremella frondosa, but when I came to section it I found Sparassis structure, not tremellaceous. I then thought that it was the true Sparassis crispa, as it resembles the figures of the plant more closely than the plant I have been taking for Sparassis crispa. I took up the matter by correspondence with Mr. Cotton, who recently wrote an article on the genus Sparassis, and was advised by him that the specimen sent by Mr. Weir was unknown to him, and that the plant I have always taken for Sparassis crispa is the true plant.

While Sparassis crispa is included in most popular works as a species frequently met with, I have received it rarely, viz.: from Dr. Kauffmann from Sweden; C. J. Davis, Michigan, and A. Yasuda, Japan. All these specimens are small and scanty, and I should be very glad if any one finding Sparassis crispa would favor me with nice, typical specimens.

There are two species of Sparassis in Europe, namely, Sparassis crispa and Sparassis laminosa. We are supposed to have two in this country (and Mr. Weir's specimen is the third), namely, Sparassis crispa and Sparassis spathulata, the latter called Stereum spathulatum by Schweinitz as found in Saccardo (and also called Sparassis Herbstii by Peck). Sparassis spathulata is our most common plant in the Eastern States and, I

think, is often confused with Sparassis crispa. I should not be surprised if it turned out that Sparassis spathulata is the same as Sparassis laminosa of Europe. On comparison they seem very close to me.

NOTE 52. **Glischroderma cinctum.**—Sent by Carleton Rea, Worcester, England. These are the first specimens we have ever seen of this rare little "puff ball." Fuckel named it and distributed it in his exsiccatae, but in all the specimens we have examined there are no fungi, only a little charred wood. It was well illustrated by Fuckel, and there is no question of Mr. Rea's determination.

Glischroderma cinctum is about the size of a pea, and resembles Lycogala Epidendrum. The peridium is cartilaginous and surrounded at the base by a white mycelium pad. The gleba is pale, argillaceous. The spores globose, 4 mic., slightly rough, and subhyaline under the microscope. Capillitium scanty, but peculiar, of hyaline, septate, threads 6-7 mic. thick. Fuckel gave a good description, but erred in describing it as "floccis destitutis."

NOTE 53. **Stereum versicolor.**—Sent by L. Romell, Sweden. This most abundant species in the United States and the tropical world in general, is strangely rare in Europe, and, curiously enough, is there only known from the extreme northern regions. Fries, who knew it scantily from Finland, called it Stereum arcticum, according to the type specimen now in his collection. I have an impression that it is also Stereum ochroleucum, at least I have seen Swedish species so labeled, but the specimen at Upsala is now endorsed "=hirsutum."

NOTE 54. **Auricularia mesenterica!!!**—Sent by Mr. James R. Weir, Montana. Exactly same as European plant and first specimens I have seen from United States. It was recorded from the East years ago by Frost, but must be a very rare plant, for there is no specimen in any Eastern museum that I have found, nor do I think there is any record of the plant in the writings of any recent American collector. An English mycologist (W. N. Cheeseman) collected it recently in Western Canada.

NOTE 55. **Daedalea confragosa, with red stain.**—Sent by James R. Weir, Montana. This is the form with a red stain which is rare in the United States, but more frequent in Europe. A monograph might be written regarding the forms that the polymorphic Daedalea confragosa takes. What is called in Europe Lenzites tricolor is very similar to this form with the red stain.

Daedalea confragosa is the type form and has hymenium that runs from the Trametes form through the Daedalea into the Lenzites form, all in the same collection, and the variation of the hymenium was noted by Persoon and Bulliard over one hundred years ago. This is the common form on willow. Lenzites rubescens is the same thing, *fresh*, with the delicate, incarnate color the plant loses when old. Trametes Bulliardii is the *trametes* form. Lenzites tricolor is the form with a deep, red stain usually found in Europe on the cherry trees. Lenzites corrugata is the thin form we have in the Southern United States.

In addition, we have received some quite decided but unnamed forms from Japan.

NOTE 56. **Cantharellus clavatus.**—Sent by Mr. James R. Weir, Montana. In Fries as a Craterellus, but it is a good Cantharellus, as shown in Fries' excellent figure (Sven ätl. Svamp t. 91), and why Fries classed it as a Craterellus I do not understand. It is a rare plant in Sweden and I have seen it but once before. I have never known of its previous occurrence in this country. The records in the East (Peck's at least) are based on a form of Clavaria pistillaria, which Fries called Craterellus pistillaria.

The spores of Craterellus clavatus are said to be ochraceous in Europe. I have no spore notes on my Swedish collection, and have mislaid the specimen so that I can not compare spores, but the spores of Mr. Weir's collection appear to me hyaline under the microscope.

NOTE 57. **A Stipitate Scleroderma.**—From Dr. Mary S. Whetstone, Minnesota. I presume I have a thousand different collections of Scleroderma from United States and Europe, and this is the first specimen of a Scleroderma **with a distinct stipe** I have ever seen from these countries. Notwithstanding, I do not consider it a "new species," but a specimen of Scleroderma Cepa with an accidental stipe, quite distinct, however, for it is over an inch long. There are species of Scleroderma with normal stipes in Ceylon and Africa, but none in Europe or America.

NOTE 58. **Fomes roburneus?**—Sent by Mr. E. Woulff, Russia. Resupinate. Close, but not exactly same as Fomes igniarius. The color is close, but more reddish. Spores hyaline 4 x 5 are same. It has rare setae, said to occur also on Fomes igniarius (but I have never found them). Fries states that Fomes roburneus is "laccate," and the only type specimen (at Kew) does seem to me to bear this out to a degree. These specimens from Mr. Woulff are not "laccate," but seem to have same color and setae as the little fragment of type at Kew.

NOTE 59. **Polyporus Yasudai.**—Received from Prof. A. Yasuda, Sendai, Japan. Plant small, fleshy, belonging to the section Lentus. About two inches tall and an inch in diameter. Pileus bluish gray when fresh, reddish brown when dry, **viscid**, the gluten quite evident even on the dried specimen. Flesh thin 1 mm. white, brittle when dry. Pores small, round, white, decurrent down the stipe. Stipe mesopodial, 1 to 2 inches long.

3-5 mm. thick, white, fleshy. Spores subglobose, piriform, with a minute apiculus, 4-4½ x 4½-5 hyaline, smooth, guttulate.

This is a species of Polyporus, remarkable in being truly viscid. But one other has been noted to my knowledge, viz., Polyporus viscosus, and that proved to be not a Polyporus, but a Boletus. Polyporus Yasudai evidently grows caespitose. Probably on wood, but the collector does not state. It should be entered in Section 45c in my recent pamphlet. The drawing of the fresh plant submitted by Prof. Yasuda is bluish gray, as are his collection notes, but the blue has largely disappeared in the dried specimens, and reddish brown would more nearly characterize them now.

NOTE 60. **Correction.** The arms of Lysurus borealis are attached to the apex of the stem instead of the base as stated on p. 513 of Mycological Notes.

The spores of "Tommyrot colossus" were given a little larger, 5 or 6 mic., instead of 4 mic., as stated on p. 7 of Letter 43.

As my manuscript is largely prepared by dictation, these little obvious slips are often occurring, although we try to take every precaution to avoid them.

NOTE 61. **Fomes pectinatus** as found in Quelet and embalmed in the traditions of Europe is a misdetermination for Fomes ribis. Fomes pectinatus is a tropical species and does not occur in Europe.

NOTE 62. **Fomes Rhaponticus.**—Pileus sessile, 1-2 inches thick, 3-5 inches broad. Context bright rhei color, with a peculiar shining effect and faintly zonate. Hyphae bright yellow. Crust thin, smooth, subconcolorous. Pores minute, the indistinct layer 5-6 mm. thick, concolorous and with concolorous mouths. Setae rare, acute, with swollen bases. Spores subglobose, 10 x 12 mic. smooth, colored.

The context is not as hard and ligneous as most Fomes, but the annual layers can be distinguished both in the pores and context. In its color and other characters it is quite close to Polyporus dryadeus, an annual plant of Europe, and differs in its perennial nature, and in its harder, smoother crust. It is also quite close to Fomes robustus of Europe, similar color and setae, but robustus has hyaline spores, and harder context.

Type specimens (Nos. 21 and 34) from Jintaro Umemuro, Mikawa, Japan, growing on Quercus.

NOTE 63. **Fomes scaurus.**—Plant with an irregular, stipe-like base. Entire plant and context dark brown, the upper surface paler. Pileus thin, 3-8 mm. thick, with a smooth, rugulose crust. Pores minute, brown with concolorous mouths. Setae none. Spores globose 4-5 mic., very pale colored.

This plant is out of the ordinary. While it has a "stipe," it is not distinct and well formed, and its relations are closer to the sessile section. In its general color and appearance, also microscopic characters, it is close to Fomes ribis. The spores are so scanty I am not sure about them. They seem to be pale colored, but are almost hyaline.

We have received two collections from A. Yasuda, Sendai, Japan (No. 12 and No. Z), and Mr. Yasuda assures us the plant always has this stipe-like base. We referred incidentally to the plant in our Stipitate Polyporoids on page 195. If classed as stipitate, it could be entered in section Pelleporus for want of a better place, but it should be classed, we believe, with Fomes ribis.

NOTE 64. **Polyporus obtusus.**—From Dr. Mary S. Whetstone, Minnesota. Young, and the first young specimen I have seen, and of much interest as showing the color of the pileus to be dark yellowish when fresh, and explaining what was always a mystery to me why Schweinitz should describe the color as "luteus." I have seen many dried specimens of the plant and could never note any indication of yellow. In fact they always impressed me as having been white, and discolored in drying. I suspect Schweinitz, who knew the growing plant, had its color right.

MINNESOTA MUSHROOMS.

"Minnesota Mushrooms" is the title of a publication (Part 4) of Minnesota Plant Studies. Although the work was issued in 1910, it has just come to our notice. We were in Europe when the work appeared. The author is F. E. Clements, State Botanist of Minnesota.

While, of course, the work is not exhaustive, we think it will prove one of the most useful publications on American mycology, particularly to those who are not familiar with the common species. It is well illustrated with photographic cuts that are characteristic enough, so that the common fungi of the woods can mostly be easily identified. The author should be strongly commended for two things:

First, he used binomials as the names for the plants, and made no reference to the biographical citations to those who are alleged to have named them. The general adoption of this plan would cause very rapid advancement in mycology, for the mycological worker would then be more interested in finding out the truth than he would be in proposing as

a new species everything he can not identify for the purpose of adding his name. We are glad to note that several recent writers, such as Romell, Massee, Swanton, and now Mr. Clements, have adopted this plan. It will lead to a very superior line of work in the future.

Second, Mr. Clements has used the established names in mycology, and has paid no attention and made no effort to take part in the cheap name-juggling that is now going on. When the host of busybodies who spend their time hunting up excuses to form "new genera," begin to realize that nobody takes them seriously, there will be less of that work done, much to the simplification of the subject.

A few errors have crept into the work which we mention as an aid in case future editions are printed. Fig. 75, Clavaria Ligula, should probably be Clavaria pistillaria. It is much too obese for Ligula. Fig. 85, Tremella fuciformis is Tremella vesicaria. It has no resemblance at all to Tremella fuciformis, which is a white species of the tropics, and does not occur in the United States. This mistake has been copied from Atkinson. Fig. 90, Tylostoma mammosus, is evidently Tylostoma campestris. Tylostoma mammosus, which is the common European species, is strangely rare in America. It is a much smaller plant than Tylostoma campestris, with a well-defined tubular mouth. Fig. 97, Dictyophallus impudicus, is Phallus Ravenelii, the same exactly at Fig. 96. The well developed veil shown on one of the sections, as well as the even pileus, are characteristic of Ravenelii and contrary to the characters of impudicus.

To the best of our belief, all the remaining figures, some 125 in number, are correctly named.

Any one beginning the study of mycology will find Professor Clements' book a most useful help. It can be obtained by sending 30 cents in postage stamps to F. E. Clements, University of Minnesota, Minneapolis, Minn.

A NEW EDITION OF McILVAINE'S BOOK.

There has recently been issued a new edition of the book that was previously issued under the title "One Thousand American Fungi," by Charles McIlvaine, revised by Chas. F. Millspaugh. Mr. McIlvaine was for years an enthusiastic observer of fungi, but he should be classed as a mycophagist rather than a mycologist, as his work was mostly confined to the edible side of the fungus question. He published some years ago a very bulky work on American fungi, which was largely a compilation. It was very useful, for he compiled in systematic form many of Professor Peck's descriptions, otherwise only found scattered through periodical literature and not accessible to the general student. The present edition appears to me to be an improvement on the original edition, both in the superior quality of the plates and the correctness of the text. There are still a great many errors in the book which should be corrected in a text-book on American fungi. Much of our literature is a compilation of traditions and mistakes, and until some one who has a familiar field knowledge of the subject writes a text-book, these errors will always be handed down.

The price of the book is $5.00. Publishers, Bobbs, Merrill & Co., Indianapolis, Ind.

MONOGRAPH OF PHOLIOTA.

Species of Pholiota in the region of the Great Lakes, by Edward T. Harper. Reprinted from Transactions of Wisconsin Academy of Science and Arts, Vol. 17, Part 1. This monograph appeals to us as being a very careful and most excellent presentation of the subject, and it will be of great value to future students of the genus Pholiota. It is illustrated with a beautiful and accurate photograph of each species, and there should be no trouble in future for students identifying their species of this genus. Such work as this done by Mr. Harper is the really valuable and useful work that is done in mycology. It is also gratifying to note that he gives the genus Pholiota in its accepted meaning and entirely ignores the cheap juggling that is attempted with the generic name both in this country and in Europe.

LETTER No. 45.

Report on specimens received at Kew during February and March, 1913. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
c/o Mr. S. A. Skan,
37 Holmes Road,
Twickenham, England.

Kew, England, April 2, 1913.

ADCOCK, G. H., Australia:

Polyporus decipiens. (Cfr. Hexagona pamphlet, page 44. Named by Berkeley as a Hexagona. Quite a frequent species in Australia, but known from no other country.—Polystictus versicolor.—Polystictus cinnabarinus.—Tremella australiensis. (See Note 80.)—Calvatia lilacina, sterile base.

AMES, FRANK H., New York:

Daedalea unicolor.—Lenzites saepiaria.—Polystictus perennis.—Polyporus chioneus.—Fomes connatus.—Stereum complicatum.—Polyporus amorphus.—Favolus microporus.—Fomes igniarius.—Polyporus tephroleucus.—Stereum versicolor.—Polyporus caesius.—Polystictus hirsutus.—Irpex pachydon (=Irpex mollis).—Polyporus albellus (=chioneus of Authors not Fr.).—Stereum fasciatum, a common species.—Guepinia spathulata.—Lenzites trabea (=Lenzites vialis).—Daedalea unicolor. *Irpicoid form.*—Irpex lacteus.—Hydnum ochraceum, (resupinate).—Enteridium Roseanum.—Polyporus lucidus.—Polystictus cinnamomeus, (=sericeus).—Polystictus hirsutulus.—Polystictus conchifer.—Polystictus pergamenus.—Lenzites corrugata.—Polyporus picipes.—Trametes sepium.—Fomes pinicola.—Polyporus Oerstedii (=Ganodermus sessile).—Polyporus albellus.—Fomes leucophaeus.—Stereum cinerascens (or "Lloydella").—Hydnum ochraceum.—Stereum ochraceo-flavum.—Phlebia radiata.—Polyporus dichrous (=Gleoporus conchatus of American Mycology).—Poria (or Irpex) Tulipiferae.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 20 1942

BALLOU, W. H., New York:
Hirneola auricula-Judae.

BARTHOLOMEW, E., British America:
Bovista Pila. Very abundant, Mr. Bartholomew advises me.—Lycoperdon gemmatum.—Lycoperdon piriforme.

BONANSEA, DR. S. J., Mexico:
Hirnelo polytricha.—Polyporus gilvus.—Lentinus velutinus.—Lenzites striatus.—Polystictus occidentalis.—Polystictus cinnabarinus (or sanguineus, intermediate).—Polystictus versicolor.

CARL, EMMA J., Ohio:
Daldinia concentrica.

COTTON, A. D., England:
Oomyces carneo-albus, on leaves of Aira caespitosa, Scotland.

DAVIS, SIMON, Massachusetts:
Polystictus conchifer.

DESSENON, M., Paris:
Trametes gibbosa.—Trametes hispida (form Trogii).

GEHMAN, JOHN, Michigan:
Fomes pinicola.—Schizophyllum commune.—Fomes fomentarius.—Hydnum caput-ursi.—Polyporus resinosus.—Fomes leucophaeus.—Stereum radiatum.—Dacryomyces aurantia.—Poria contigua?

GRIFFITHS, D., District Columbia:
Irpex cinnamomeus.

HARPER, E. T., Illinois:
Cantharellus clavatus. The spores are 6 x 12, *very faintly* ochraceous, almost subhyaline under the microscope. There is but little ground for basing a "new genus" on the color of the spores. The color is shown much too deep in both Patouillard's and Bresadola's figures. Mr. Harper states that Cantharellus brevipes, as named by Peck, is a synonym, and while this never occurred to me, now that it has been suggested, there is no doubt in my mind of the correctness of the reference.

HOLDEN, WM., Wisconsin:
Fomes leucophaeus, several collections.—Polystictus cinnabarinus.—Lenzites saepiaria.—Fomes igniarius. Nice specimens with setae tending toward nigricans.—Myxomycetes plasmodium.

IRANI, J. H., India:
Polystictus xanthopus, abundant collections of a frequent species.—Fomes Zelandicus. Compared with type at Kew.—Trametes lactinea. A

pure white species, which is frequent in the East. The surface is soft, velvety to the touch. I get it also frequently from Australia.

KERN, FRANK D., Indiana:

Calvatia lepidophora. (See Note 81).

KOENIG, P., Mauritius:

Polyporus gilvus.—Polystictus occidentalis.—Hexagona discopoda. This plant is pure white with a reddish stain near the base. Discopoda naturally is light brown, but I suspect this specimen has been bleached by age. If when in its prime it is this same pure white color, it is an unnamed species.

MACOUN, JOHN, Canada:

Fomes (Polyporus) carneus. Specimen more scrupulose than usual in our Eastern States.—Bovista Pila.—Lenzites saepiaria.—Peziza (Chlorosplenium) aeruginosum.—Phlebia radiata.—Fomes annosus.—Gyrocephalus rufus, (=Guepinia rufa, Authors). A rare plant.—Polyporus picipes.—Fomes pinicola.—Polystictus versicolor.—Clavaria striata.—Xylaria hypoxylon, (See Note 66).—Polyporus adustus, (resupinate).—Thelephora fimbriata.—Thelephora anthocephala (?).—Stereum.—Polyporus hirtus, (see Note 67).—Daedalea confragosa. (This is the form called rubescens A. & S.).—Polyporus caesius.—Polystictus hirsutus.—Fomes igniarius var. nigricans.—Polystictus pergamenus.—Polyporus Schweinitzii.—Corticium amorphum.—Stereum spadiceum.—Polystictus.—Helotium citrinum.—Fomes applanatus.—Dacryomyces aurantiaca.—Also several Porias, Hymenochaete, resupinate Hydnums, Granularias, Peniophoras and Corticium.

MENEZES, C. A., Madeira Islands:

Polysaccum pisocarpium.

MORRIS, GEO. E., Massachusetts:

Polyporus confluens.—Polystictus velutinus.—Lenzites trabea (=Lenzites vialis).—Fomes pinicola.—Polystictus circinatus (very close to tomentosus).—Fomes fomentarius.—Polyporus varius. (See Note 68).—Polyporus pallidus.—Thelephora albido-brunnea.—Hydnum aurantiacum.—Hydnum ferrugineum. This recalls this species as I have collected it in Sweden, but without being able to compare it, I can not be sure. Hydnum ferrugineum is a species that exudes drops of reddish juice when growing. Hard to recognize dry.—Hydnum cyaneotinctum. (See Note 69).—Hydnum niger. (See Note 70).—Hydnum (sp.). (See Note 71).—Hydnum vellereum.

NAMBU, N., Japan:

Polystictus hirsutus.

PATTERSON, MRS. FLORA W., Washington, D. C.:

Geaster hygrometricus var. giganteus from Oregon. This mammoth form of Geaster hygrometricus only occurs with us in the Western States.

PECKOLT, GUSTAVO, Brazil:

Polystictus pinsitus.—Polyporus Schweinitzii. (See Note 76.)

PETCH, T., Ceylon:

Polyporus sideroides. The first specimens I have gotten of this characteristic species (Cfr. Stipitate Polyporoids, page 160). It is quite a peculiar species and only heretofore known from Java.—Fomes Caryophylli. —Polyporus obtusus. (See Note 65).—Trametes cingulatum.—Polyporus licnoides.—Polystictus hirsutus?—Hexagona apiaria.—Trametes ochroleuca. —Polyporus secernibilis. The first collection received by me and compared with the type and description. Surely same. The type is quite scanty and I have heretofore thought a form of Polyporus adustus, with which it agrees in pores and allantoid spores. From these specimens I readily see the pileus is light brown, minutely pubescent, *zoned*, as described by Berkeley, originally from Ceylon.—Polyporus luteus.—Polyporus gilvus.—Fomes rimosus.—Fomes lignosus.—Lenzites subferruginea.

ROBINSON, R. G., New Zealand:

Fomes applanatus, (undeveloped).—Fomes hornodermus? undeveloped. —Daldinia concentrica. A fine large specimen over two inches in diameter.

ROMELL, L., Sweden:

Poria punctata as labeled by Mr. Romell, who considers Poria Friesiana as a synonym.

STOCKER, S. M., Minnesota:

Fomes fomentarius.—Lenzites saepiaria.—Polystictus cinnabarinus.—Polystictus pergamenus, an unusual form.

SWANTON, E. W., England:

Hydnum auriscalpium.—Daedalea unicolor.—Hydnum velutinum.—Hydnum melaleucum.

UMEMURA, JINTARO, Japan:

Polystictus caperatus.—Unnamable. Abnormal (Myriadoporus) form of some Polyporus or Poria.—Polyporus gilvus.—Fomes angulus. (See Note 73).—Fomes (Ganodermus) leucophaeus.—Stereum duriusculus. (See Note 74).—Thelephora (probably unnamed).—Fomes (Ganodermus) applanatus. The form with little context development and yellowish pore mouths called Fomes australis.—Fomes pinicola.—Daldinia concentrica.—Trametes odorata. (See Note 75).—Polystictus flabelliformis. *Subsessile form.*—Geaster mirabilis.—Polystictus pterygodes. (Cfr. Synopsis Polystictus, page 56, fig. 346).—Polystictus hirsutulus.—Polyporus adustus.—Daedalea unicolor.—Stereum fasciatum.—Hydnum zonatum.—Polystictus.—Lenzites betulina growing on Abies. The usual host of this species is frondose wood. The specimens are the "faune" color, called Lenzites Berkeleyi by Leveille, but really not a distinct form of Lenzites betulina.—Hypoxylon annulatum, named by Miss Wakefield at Kew. I have never worked on the species of Hypoxylon.

VON DE LEK, H. A. A., Holland:

Polyporus alutaceus on Abies.—Polyporus cuticularis. This specimen was so large and thick that at first I could not believe it to be cuticularis. However, it has same context color and spores. The general aspect of the plant is more like that of Polyporus hirsutus, but the spores and context color are both different.

VON SCHRENK, H., Texas:

Polyporus sulphureus.—Polyporus texensis. Growing on the Mesquite and causing a heart decay. Polyporus texensis is quite close to Polyporus corruscans and should be compared with it. I have not the material at Kew to make the comparison.

WHELDON, H. J., England:

A fine collection of Ascomycetes all as named by Mr. Wheldon. Byssosphaeria aquilla, Claviceps purpurea, Diaporthe samaricola, Diatrype stigma, Daldinia concentrica, Capnodium salicinum, Chaetomium comatum, Cucurbitaria spartii, Erysiphe graminis, Gnomoniella tubiformis, Glonium lineare, Hysterium pulicare, Hysterographium Fraxini, Hypoxylon fuscum, Hypoxylon multiforme, Leptosphaeria acuta, Lasiosphaeria hispida, Melanomma pulvispyrius, Melanconis alni, Nectria coccinea, Nectria episphaeria, Nectria cinnabarina, Ophiobolus vulgare, Phyllachora junci, Phoma muscicola, Rhopographus filicinus, Sphaerella punctiformis, Xylaria polymorpha, Xylaria hypoxylon.

Ascophanus equinus, Belonidium pruinosum, Bulgaria inquinans, Dasyscypha colycina, Dasyscypha virginea, Helvella corium, Humaria granulata, Heterosphaeria patella, Helotium cyathoideum, Helotium herbarum, Helotium aureum, Helotium citrinum, Helotium scutula, Lachnea scutellata, Mollisia cinerea, Neotiella nivea, Rhytisma acerinum, Rhytisma salicinum, Sepultaria arenicoloa, Sphaerospora trechirposa var. paludicola (First British record).

WILSON, JAMES, Australia:

Stereum hirsutum.—Strobilomyces pallidus (See Note 82).—Polyporus lilacino-gilvus.—Polyporus picipes? old and effete.—Polyporus (sp.) undeveloped.—Also seven collections of Boletus that I am unable to determine from dried specimens.

YASUDA, DR. A., Japan:

Fomes torulosus, (Cfr. Myc. Notes, p. 470).—Mycelium.—Polyporus leucomelas.—Polyporus ilicicola. (See Note 77).—Hydnum (probably unnamed). Not an American or European species and not named at Kew. It is the first Hydnum I have seen with brown context that is *Pleuropodial.* —Hydnum (Sp.).—Stereum spadiceum.—Stereum (Probably unnamed).—Fomes robustus.—Fomes melanoporus.—Stereum bicolor, as advised.—Stereum fasciatum, old.—Phlebia strigoso-zonata, (as Merulius). This seems to be a widely distributed plant. (Synonyms are Phlebia rubiginosa, Phlebia pileata, Phlebia reflexa, Stereum lugubre, etc.)

NOTE 65.—**Polyporus obtusus,** as received from Prof. Petch, Ceylon. The finding of this plant in Ceylon by Prof. Petch is quite remarkable. It is fairly a frequent plant in the United States, but known in recent times from but one collection (Kmet) in Europe. It only occurs in the East of Europe, and was originally found by Schulzer in Hungary. It appears in Fries' Hym. Europae as Polyporus Schulzeri and the identity of the European and American plant was recently suggested by Mr. Murrill, and I think it is correct. While there are a number of specimens from the United States in the museums of Europe, I believe there is but one from Europe (viz. Kmet), and the collection of Prof. Petch is the first known from the East.

Berkeley described the plant as Polyporus, then he transferred it to Trametes incidentally in a paper somewhere, but it was overlooked by Cooke and Saccardo and the plant has always appeared as a Polyporus. It is a question whether it is a Trametes or Polyporus, just as it is a question how to define Trametes.

NOTE 66.—**Xylaria hypoxylon,** specimen from John Macoun, Vancouver, Canada. In the United States I have only observed this species from the extreme Northwest. We have a very common plant, usually so determined, but I think in error. Our common plant does not in my opinion agree with Xylaria hypoxylon so common in Europe.

NOTE 67.—**Polyporus hirtus,** specimen received from John Macoun, Vancouver, Canada. This is the first specimen I have ever received. It is quite a rare plant in the United States and the only two collections I have previously seen from the United States were in Peck's collection at Albany. Peck called it a new species, Polyporus hispidellus, but it is the same as a rare plant named in Europe. It is peculiar in its spores (cfr. Stipitate Polyporoids, page 130). The stipe in this specimen is not as strongly lateral as shown in our figure (426).

NOTE 68.—**Polyporus varius,** sent by George E. Morris, Waltham, Mass. In America this typical plant of Europe is rather rare, but Mr. Morris' plant seems exactly same as type form in Europe. Our common form, which we call Polyporus picipes, is really only a geographical form of varius of Europe, but is a thinner plant and of darker color.

NOTE 69.—**Hydnum cyaneotinctum,** from George E. Morris, Waltham, Mass., is probably the same as Hydnum compactum of Europe and also Hydnum caeruleum. I note in the herbarium at Kew, American specimens referred to Hydnum compactum by Berkeley, Farlow, and Ellis. It is very close also to suaveolens, which, like it, turns blue when cut.

NOTE 70.—**Hydnum niger,** from George E. Morris, Waltham, Mass. I have long thought that our American plant must be the same as the European species, and a comparison at Kew of Mr. Morris' species with the freshly collected English material fully confirms this.

NOTE 71.—**Hydnum (sp.),** from George E. Morris, Waltham, Mass. This has a very peculiar color, greenish yellow, but unnamed as far as I know. I have seen a specimen of this same plant in Peck's herbarium determined as Hydnum geogenium of Europe. This has a similar color, but the European species is entirely different in its mode of growth. Good specimens of geogenium are at Upsala. There is also a cotype (from Fries) at Kew, but it is old and has lost all its distinctive color.

NOTE 72.—**Libellus,** a new genus of Thelephoraceae. Pileate with a central stipe. Pileus, thin like a sheet of paper, with hymenium on the lower side. Hymenium even, smooth, without cystidia. This is based on a plant named by Berkeley Craterellus papyraceus. The genus differs from Craterellus in the very thin, fragile pileus, which can be likened to a sheet of paper.

Libellus papyraceus, Berkeley. Pileus horizontal, smooth, thin, less than a mm. thick, 7cm. width, membranaceous. Color, bright red. Hymenium on the lower surface, smooth, glabrous, color yellowish brown when dry, bright red when fresh. Stipe mesopodial, slender, equal, 9 cm. long, 3 mm. thick, dark brown, glabrous. Cystidia none. Spores or basidia not found.

This is a most striking and peculiar plant; no other, as far as I know, is in any way similar. The nearest seems to be the genus Heliomyces, which, however, has a viscid hymenium, belonging to the Agaric series. It is only known from the type at Kew, a single specimen, collected by Fendler in Venezuela. Smith gave a striking picture of this plant in the British Journal of Botany, but I have misplaced the reference, and do not recall what name he used. At any rate, Berkeley corrected it, and it was overlooked in Saccardo.

NOTE 73.—**Fomes angulus,** from Jintaro Umemura, Nagoya, Japan. Pileus angular, semiresupinate, small (2-3 cm. wide, 1-1½ cm. thick). Surface black, hard, with narrow, raised zones. Context hard, dark, ferruginous. Pores minute, with narrow, annual layers (1 mm.). Pore mouths concolorous. Setae none. Spores not found, no doubt hyaline.

This species is unusual in the angular, subappressed, zonate pileus. In context color and microscopic characters it approaches Fomes igniarius. Type (No. 78) from Jintaro Umemura, Nagoya, Japan, growing on Pasania, which is allied to Quercus and held by some to be the same genus.

NOTE 74.—**Stereum duriusculus,** received from Jintaro Umemura, Nagoya, Japan. Compared with the type at Kew. This is a thick, rigid species, evidently perennial. The hymenium is white and it turns brown on bruising, but does not turn red as does the very closely related Stereum rugosum of Europe. The context color is pale isabelline, and a thin section shows subhyaline hyphae variegated with layers of brown. It was originally from Ceylon, and the type is the only collection at Kew.

NOTE 75.—**Trametes odorata,** sent by Jintaro Umemura, Nagoya, Japan. When fresh it is quite fragrant. The discovery of this plant in Japan is of more interest from the fact that while it occurs in Europe it is apparently absent from the United States. Trametes odorata has a general appearance close to that of Trametes pini, same color, but softer texture. The pores with the glaucous lining are also same. But Trametes pini under the microscope has abundant setae that are absent from odorata.

NOTE 76.—**Polyporus Schweinitzii,** received from G. Peckolt, Brazil. Though quite different in its manner of growth, with the same color, context, pores, spores, and all characters other than manner of growth we must so refer this plant. These specimens consist of numerous pilei that grew *imbricate, dimidiate.* Polyporus Schweinitzii in Europe and United States is normally stipitate from the ground, though usually attached to buried wood. Sometimes it occurs dimidiate on trunks, but I have never before seen a specimen consisting of numerous pilei imbricate. From the color of the plant one would hardly suspect it of having white spores, as found abundantly in Dr. Peckolt's specimen.

NOTE 77.—**Polyporus ilicicola,** from Dr. A. Yasuda, Japan, and which was named from Japan. It is quite close to Polyporus gilvus, same setae and spores, but thinner and softer context. When young it has a bright, yellow color, which it loses with age. Hennings evidently made a bad error in describing the spores as I noted in examining the type at Berlin. They are hyaline, globose, 3-3½ mic.

NOTE 78.—**Coprinus radians.** It develops, in conversation at Kew, that the plant I figured (page 145) as Coprinus radians is known in England as Coprinus domesticus. I am glad to learn this, for Coprinus domesticus has always been an unplaced species to me. In looking up the figures, while our plant is surely the plant figured by Gillet, and probably by Cooke as domesticus, it is also surely the plant described and figured excellently by Desmazières as Coprinus radians. Besides Coprinus domesticus does not have a clear title. Persoon named and cited Bolton t. 26, which was probably the sole source of his information. What Fries means by citing "Persoon not Bolton" is therefore hard to make out. Besides Persoon saw Desmazière's plant and approved it as unknown to him, which would indicate at least that it was not his idea of Coprinus domesticus. In addition, the plant belongs where Fries placed it next to Coprinus micaeus, and not in the section "veliformes," where he places domesticus.

NOTE 79.—**Eichleriella deglubens,** McGinty. A sad case of priority. There is a quite frequent plant in Europe which was named Radulum Kmetii by Bresadola. It is not rare in Sweden and Fries probably had a name for it, but what it was no one knows. I learned it from Mr. Romell, and he learned it from Bresadola, so that the genealogy is pretty straight. Afterwards Bresadola found that it had cruciately divided basidia and removed it to the genus Eichleriella, which he had based on this character, and it was then stated that the section Hirneolinia of Sebacina was the same. Saccardo takes the section Hirneolinia as the valid, generic name, which is directly contrary to the published view of its author, and it is also contrary to general usage to displace a published, generic name by one used only as a sectional name.

Eichleriella deglubens is also quite frequent in England, where it usually poses as Stereum rufum (sic) as endorsed by Miss Wakefield on the sheet. Berkeley made abundant collections and always so referred it (excepting once, unfortunately). In fact, the record of Stereum rufum in England appears to be based only on this plant! In going over the Radulum sheets I noticed that the type of Radulum deglubens (a mere frustule) was evidently same as Radulum Kmetii as I learned it in Sweden. A microscopic examination made by Miss Wakefield confirms it. Although Berkeley did not know his own species and usually called it Stereum rufum, as he had named at a prior date a little frustule, Radulum deglubens, I suppose he has established his right to the specific name deglubens according to the sacred rights of priority. At least that is Prof. McGinty's view, to whom I submitted the question, and who proposes the name Eichleriella deglubens, McGinty.

As the name Kmetii is quite well established, it seems to me unfortunate to change it, but since it is the "law" now I presume we shall have to bow to the "sacred right of priority."

NOTE 80.—**Tremella australiensis,** received from G. H. Adcock, Victoria, Australia. A very common species in Australia, which has been received many times in Europe and generally referred to Tremella mesenterica. While it is gelatinous, Tremella australiensis is not as gelatinous as the European species, and in its flesh and consistency, is more like a Peziza. It belongs to the foliaceous section of the genera, rather than the cerebrine section to which the European plant is referred.

Pileus fleshy-gelatinous, convolute, foliaceous, deep yellow color. Hymenium amphigenous. Basidia ovate-globose. 14 x 20, deep yellow when young, when old paler and cruciately divided. Spores globose, pale yellow, 7-8 mic., smooth.

The Australian plant impresses me as being somewhat different from Tremella mesen-

terica, but is probably best classed as a form. Cooke illustrates it as Tremella foliacea (Handbook fig. 92), but it is only fair to state that this was based on Berkeley's determination. Still both of them ought to have known that Tremella foliacea is *not yellow*.

NOTE 81.—**Calvatia lepidophora**, sent by Frank D. Kern, LaFayette, Ind. This is the second collection known of this rare species. It was collected by Dr. J. C. Arthur, October 11, 1905, near LaFayette, Ind. The only previous collection was made in Dakota by Nellie E. Crouch, and is the type in Ellis' herbarium. Calvatia lepidophora differs from all other species in having a thin paper-like inner peridium, which persists after the thick outer peridium breaks up and falls away. On this character it was made the type of a "new genus" (cfr. Myc. Notes, p. 140) and named Hypoblema, but I feel now it is much better to refer it to Calvatia with which it agrees in most characters.

NOTE 82.—**The genus Strobilomyces.** The receipt of a specimen from James Wilson, of Beaconsfield, Victoria, Australia, Strobilomyces pallescens, which seems to be a frequent species in Australia, led to my investigating the subject of Strobilomyces at Kew. Berkeley based the genus Strobilomyces not on the scales as might be supposed from his name, but on it having *globose spores*, thus differing from the usual Boletus with which Berkeley was familiar. This character is neglected in Saccardo, but has been duly dug up by Murrill in his recent juggle of the genus Boletus, or rather rejuggle, for the same work had been done before by both Karsten and Quèlet, to which no one ever paid any attention.

There are at Kew, in addition to the well known Strobilomyces strobilaceus, ten "species" each "known only from the type locality." All of them are more or less scaly except one, Strobilomyces polypyramis, which is smooth or the ordinary Boletus type of pileus but which has globose spores, further evidence of the idea Berkeley had of the distinction of his genus.

Of the eleven species at Kew, six of them, viz. polypyramis, velutipes, strobilaceus, floccopus, montosus, and nigricans, have globose spores. Five, viz. ananaeceps, pallescens, paradoxus, rufescens, and ligulatus, have elongated spores of the ordinary Boletus type. In justice to Berkeley, however, it should be stated that neither of the five with elongated spores were by him referred to Strobilomyces. This was mostly Cooke's work. As some of them, particularly Strobilomyces pallidus, accord exactly in the nature of the scaly pileus to the original species, it is probably better to modify the original definition of the genus, as has been done in practice, if not in words.

If the genus is restricted to species with globose spores we get a few species which are typically Boletus in every other respect. If defined by the large scales on the pileus (whence the name), it includes species the same exactly as Boletus as to spores. Of course, an easy way out of the trouble would be to discover a "new genus," but too much of that farcical kind of work has been done already.

NOTE 83.—Who has a Hundred Thousand Francs to spare for a worthy object!

"Je puis prouver que la Mycologie actuelle n'est qu'une vraie confusion où les transformations d'un champignon unique, suivent même chacune de ses parties constitutives, les transformations de ses différentes sortes de spores et ces spores elles-mêmes, ont été classeés comme espèces et réunies pêle-mêle en genres, familles, sous-ordres et ordres, ou de toute autre manière, selon la fantaisie des auteurs. C'est pour cette raison que la Mycologie, au lieu d'être la première des sciences et la plus féconde, n'est encore qu'une petite science, pleine de difficultés et nulle en fait d'applications.

Je puis prouver que chaque modification et chaque combinaison nouvelles de substances produisent de nouvelles espèces de champignons.

Cette grande vérité—"Il n'y a qu'un champignon, qui se transforme à l'infini selon la milieu" constitue la découverte du "Proteisme ou Unité du Champignon."

Les avantages de cette découverte sont immense; c'est un incomparable progrès dont ou ne peut se passer; mais, comme elle doit détruire des systèmes fameuse et des erreurs de toutes sortes, elle est retardeé depuis longtemps.

Je prends l'engagement d'abandonner toute récompense pécuniare, justqu' à concurrence de cent mille francs à celui ou à ceux qui selon auront le plus contribué à la faire admettre.

Je vous en enverrai la démonstration, si vous me promettez de la vulgariser de votre mieux, aussitot votre conviction bien établie. Je ne puis écrire, qu'à' un petit nombre des membres de la Societé Mycologique de France. Je compte, Monsieur, sur votre zèle pour la vérité et pour le progrès."

If you know of any one who wants to spend 100,000 francs, we shall be glad to give the address of this disinterested benefactor of mycology. As his scheme of "benefaction" seems to be very much on the same order as that of the late and lamented Otto Kuntze, we respectfully bring it to the attention of the New York Botanical Garden.

LETTER No. 46.

FOREIGN STEREUMS IN OUR MUSEUM.

(By C. G. Lloyd, written at Kew, April, 1913.)

We have received in the past from foreign correspondents quite a number of Stereums which we were unable to name, as we were only familiar with the species of Europe and United States. We have spent a couple of months at Kew, studying there the rich collection of foreign species, and comparing our specimens, and have since worked over the specimens at Leiden, Berlin, and Paris.

We take the genus Stereum in the original Friesian sense, but would modify it to include the species with hyaline spores. It is quite difficult to decide what distinction the old mycologists made between Stereum and Thelephora. We would restrict Stereum to those species that have hyaline spores, and Thelephora to those with colored, angular spores. While this is a microscopic distinction and as a general rule we do not favor basing genera on such differences, it is a practical division and the genera can be recognized by the eye. There are very few species of Thelephora in the tropics under this definition.

The genus Stereum can be broken up in several ways, we think to not much advantage. Patouillard considers the stipitate species as forming a genus, but we can not see why a stipe in Stereum is of more importance than a stipe in Polyporus, which he does not divide on this character. There are various types of "hairs," (or cystidia as they are called), and Léveillé, Cooke, and others would form genera on these hairs. In practice it will be found to be very much of a "hair-splitting proposition," for there are half a dozen different types of hairs and they grade into each other so it is impossible to draw a line between the different genera if they are based on these "hairs." Besides, the same hairs have as much value theoretically in all other groups, for Agarics, Hydnums, Polypores, and even Tremellaceae have these hairs, and no one ever attempts to make genera on them excepting in the Thelephoraceae.

While "hairs" on the hymenium may be a convenient character to subdivide the excessively numerous, resupinate species, which otherwise afford few characters to group into sections or "genera," like everything else that is good in moderation, it has been carried to excess by recent writers. Particularly by von Hohnel, who bases a "new genus" (and adds "von Hohnel" to each species) on every shape, size, exudation, coloration, and position of hairs that he finds on the hymenium.

The genus Stereum is not so large that it is necessary to resort to any such strategy, and it is much simpler and better in my opinion to take Stereum in its generally accepted use and meaning. The genera Peniophora and Hymenochaete in the sense of Cooke (in part) and the recent genus Lloydella have little value for me.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

We append a list of Foreign species of Stereum received in the past, and which we have been enabled to name at Kew.

Kew, April, 1913. C. G. LLOYD.

STIPITATE SPECIES.

STEREUM AURANTIACUM. This was one of the first foreign species named by Persoon, and the only yellow, stipitate species I have seen. Specimens from:

Brazil—Anna Brockes.
Samoa—C. G. Lloyd.

STEREUM ELEGANS. A frequent species in the tropics, growing caespitose in earth with irregular, infundibuliform, confluent pilei. Specimens from:

Australia—F. M. Reader, J. T. Paul, Edmund Jarvis, W. R. Guilfoyle, A. G. Hamilton, Miss E. J. Turner.
India—Donor unknown.
Ceylon—T. Petch.
Jamaica—Wm. Cradwick.

STEREUM FLORIFORMIS. Similar to elegans, but thicker, more spathulate. Specimens from:

Africa—Dr. G. Zenker.
India—G. A. Gammie.

STEREUM PUSILLUM. A little, infundibuliform species, growing in ground. Only type in British Museum. Specimen from:

Philippines—James G. Brown.

STEREUM SURINAMENSE. A bay-brown, infundibuliform species growing on wood. Very common in the tropics and usually misreferred to Stereum elegans, from which it differs in habits. A single specimen was named fulvo-nitens by Berkeley, from the West Indies, but usually Berkeley referred it as others do to Stereum elegans. Specimen from my own collection, Samoa.

STEREUM INVOLUTUM (Lloydella). This species seems quite variable, but can be recognized by a peculiar, smooth, waxy, reddish-bay hymenium. A section shows metuloids. It is not truly stipitate, but attached by a reduced base. I have specimens from:

New Caledonia—Museum at Paris.
Samoa—C. G. Lloyd.
Java—C. B. Ussher.

STEREUM MIQUELIANUM. A little infundibuliform species grown on wood. No type found by me, but I believe the same as found at Kew from Brazil under the (mss.) name Stereum Trailii. Specimens from:

Congo, Africa—Rev. J. Gillet.

STEREUM CAPERATUM. A frequent plant in the tropics and occurs in Southern United States. It is intermediate between the genera Stereum and Cladoderris, and by some is classed in the latter genus. It could also be classed as "Lloydella."

New Caledonia—Museum at Paris.
Samoa—C. G. Lloyd.
Southern United States—Several.

SECTION APUS.

STEREUM LOBATUM. The most common Stereum in the tropics with brown pubescence and frequently zoned with smoother, deeper, brown zones. Stereum fasciatum, essentially the same plant in temperate regions, has gray pubescence, but the color is due I believe to climatic conditions.

Tropical America—A. Hempel, Brazil.
New Zealand—S. Duncan (also form with appressed pubescence).
Australia—J. T. Paul (also form with yellowish hymenium), James Wilson, Donor unknown.
Africa—W. T. Saxton, Ed. Luja, Miss A. V. Duthie, I. B. Pole Evans, Dr. H. Becker.
Madagascar—Henri Perrier de la Bathie.
Mauritius—P. Koenig.
Ceylon—Prof. T. Petch (sent as S. ostrea).
Java—J. P. Mousset.
Mexico—Dr. Sylvias J. Bonansea.
India—H. Val. Ryan.

STEREUM LOBATUM, *lobed form.* Notwithstanding its name, Stereum lobatum is usually entire. I have a strongly lobed form from Henri Perrier de la Bathie, Madagascar. On scraping it this does turn a little red (a tendency towards S. spadiceum) but I find no "lactiferous ducts" in a section, and feel it is at best a form of S. lobatum.

STEREUM LOBATUM *with cinereous hymenium.* From Africa (only) I received a plant which appears in all respects to be same as lobatum (or color closer to fasciatum) but it has decidedly cinereous hymenium. I have not found it in any museum named as a "species," which is rather strange.

South Africa—I. B. Pole Evans, W. J. Newberry.
Congo—Dr. G. Zenker.
Mauritius—C. A. O'Connor.

STEREUM FASCIATUM. As previously stated, I can only make it the temperate region form of Stereum lobatum with no real difference. I have been puzzled for years whether it should be called Stereum fasciatum as Schweinitz unquestionably named it, or Stereum versicolor as Ellis always determined it, attributed to Swartz. I have looked up the types of the latter in the British Museum in previous years but was not able to convince myself. After working two months at Kew on Stereums, I feel better able to pass on species, and on revisiting the British Museum I find the type of Stereum versicolor to be the same as Stereum radians, (which is authentic at Kew), a species of the tropics quite close, but *smoother* than Stereum fasciatum. The name Stereum versicolor, so frequently misapplied to this common plant in the United States, is due to Ellis, not Berkeley, to whom I formerly attributed it. Berkeley's specimens are mostly correctly referred to as Stereum fasciatum. We have

very many specimens of Stereum fasciatum from the United States, and the following from foreign countries:

Argentine—Leon Castillon.
Japan—J. Umemura, A. Yasuda.

STEREUM HIRSUTUM. A frequent plant in Europe, but mostly replaced in the United States by Stereum complicatum. The hymenium is yellow in Europe, often turning cinereous when old, but judging from my foreign collection it persists as yellow in Australia and South Africa.

Australia—H. B. Williamson, Miss E. J. Turner, Miss Ellen I. Benham, W. R. Guilfoyle.
South Africa—Miss A. V. Duthie, W. J. Newberry, Dr. H. Becker.
Madagascar—Henri Perrier de la Bathie.

STEREUM HIRSUTUM, *form* with clear, yellow hymenium and pale (almost white) pubescence.

South Africa—I. B. Pole Evans.

STEREUM VELLEREUM. This is quite close to hirsutum. The hairs are of the same nature but are always pale. Hymenium also pale (never yellow). It seems quite common in Australia and South Africa. I have it also from Japan and I believe Northwest Canada.

Australia—W. R. Guilfoyle, Edmund Jarvis.
Japan—J. Umemura.
Madagascar—Henri Perrier de la Bathie.
South Africa—I. B. Pole Evans.

STEREUM RIMOSUM. This species has a soft, mottled, tomentose pad-like covering to the pileus, and a thick, white hymenium which becomes cinereous and often cracked in old specimens. Specimens from:

Madagascar—Henri Perrier de la Bathie.
South Africa—I. B. Pole Evans.

STEREUM NEO-CALEDONICUM, cotype.

New Caledonia—Ex. Mus. Paris.

STEREUM CYPHELLOIDES. Very smooth, pure white, spathulate. Specimens from:

Madagascar—Henri Perrier de la Bathie.

STEREUM PRINCEPS. Thick, rigid, a frequent species in the East.

Japan—M. T. Yoshinaga.
Java—Dr. J. C. Koningsberger.

STEREUM LEVEILLEANUM. A most peculiar species as to color, Vandyke red. It has a velutinate hymenium of projecting hyphae, not specialized, hence I do not know whether it is a "Lloydella" or not.

Argentine—Leon Castillon.

STEREUM SPECTABILE. This has "dendrophytes" hence must be a "new genus" I suppose. It is the only named species (except frustulosum) with which I am familiar with "dendrophytes." The type specimen is at Berlin, but the species is mostly represented in the museums by one of Roumegères' exsiccata, and what is the strangest part about it is this number of the exsiccata is correctly named.

Australia—Miss Margaret Flockton.

STEREUM SIMULANS. The types from Australia are in British Museum. I did not examine a section, but I do not question that a plant I collected abundantly in Samoa should be so referred, notwithstanding that my plant was glabrous, and simulans was said to be tomentose.

It is a rigid (but rather thin) species with a smooth, brown, zoned pileus, *yellowish* context, and hymenium bleeds on being scratched. It is quite close to Stereum subpileatum, in fact, might be held as a variety.

Samoa—C. G. Lloyd.

STEREUM MEMBRANACEUM. This is a "Lloydella" Stereum with a dark, purplish hymenium, quite common in the tropics and usually referred to papyrinum, which is a synonym. It is of much softer context than most Stereums. No authentic specimen of membranaceum has been seen by me, but it is said to be same as papyrinum, so common in the museums under various names, and the description justifies this conclusion.

Various collections found in Montagne's herbarium determined as Stereum membranaceum, are surely same as Montagne afterwards named Stereum papyrinum.

Nicaraugua and Mexico—C. T. Smith.

Bahamas—L. J. K. Brace.

Bengal—S. Hutchings.

Brazil—Anna Brockes.

STEREUM PERCOME. This is a "Fauxlloydella" with cystidia, not metuloids. It was originally from Japan. Stereum latum is the same to the eye, but a "Lloydella" with typical metuloids. I expect in time they will prove to be the same species, for I doubt if the "hair" characters of Thelephoraceae are always uniformly the same.

New Caledonia—from Mus. Paris, (labeled S. latum).

India—Donor unknown.

STEREUM BICOLOR (Lloydella). Same as in Europe and United States.

South Africa—W. J. Newberry.

Japan—A. Yasuda.

STEREUM BICOLOR? These specimens are thinner and the contrast of color is not so great as in the European plant. Same section however, and same metuloids. This collection has been named for me Stereum Beyrichii, but is surely not same plant as I have seen so noted elsewhere which "wants the cystidia which are present in bicolor."

Samoa—C. G. Lloyd.

STEREUM FERREUM, Smith's collection in Mexico, Nos. 98 and 147, as named by Ellis. Compared with the type at Kew and found to be correctly named. The types are resupinate, hence so placed in our literature. Mr. Smith's collection is distinctly pileate. It is a "Lloydella."

SECTION HYMENOCHAETE.

This which is a "genus" for various authors is for me at best a section, and not a very good one at that, for while in many species the "hairs" are typically those of Hymenochaete, in Stereum luteo-badium and others, they merge into "Lloydella" through various connecting forms and colors.

Besides as the genus Stereum was *originally based on these hairs*, it is only a question of a juggle to rename all Hymenochaete species as Stereum and all (other) Stereums as something else. The jugglers do not seem to have as yet discovered this.

STEREUM VILLOSUM. This species of the East is the analogue of our Stereum tabacinum. Léveillé gave it two or three different names and Berkeley also. The normal color is the same as that of Stereum tabacinum, but it takes what for me is a dark form (fuliginous) and was called Stereum adustum by Léveillé. Specimen from:

Java—J. P. Mousset.

STEREUM DAMAECORNE. A frequent and quite variable species of the American tropics, but unknown elsewhere. It varies from simple, reniform pilei to pinnatifid, multiplex in the same collection. Naturally it has several names, but they are of no value in my opinion, even as to forms. It is the only stipitate species known in the section Hymenochaete. Specimen from:

Brazil—Gustavo Peckolt.

STEREUM LUTEO-BADIUM. This species has had quite a complicated history. Kunze first named it from Weigelt exsic. from Surinam "Thelephora badia Hook." Hooker had previously named a Thelephora badia from South America, and while he never did much with fungi, he apparently did not like the determination of Kunze and published and figured both species (Bot. Misc., 1831) and changed Kunze's name to Thelephora Kunzei. Saccardo seems to have overlooked both the name and the figure. A year previously, however, Fries had published in Linnaea the Weigelt exsiccatae specimen as Thelephora luteo-badia, which being a good name for it we adopt. It is quite a strongly marked species in having the color of the hymenium yellowish, differing from the tabacinus color of the pileus. It is not a "typical" Hymenochaete for the hairs of the hymenium are also yellowish, not deep red-bay as in the usual species. Still as "hairs" vary in color from very slight traces of color in some species to the intense deep color of Hymenochaete, I do not know where to draw the line between "Lloydella" and "Hymenochaete." Stereum luteo-badium seems fairly common in tropical America. We have specimens from Anna Brockes and Gustavo Peckolt, both from Brazil.

STEREUM TENUISSIMUM. Thinner and with fewer setae, but for me very much the same species as tabacinum of Europe. Specimens from:

Africa—Hyac. Vanderyst.

Brazil—Dr. Anna Brockes.

STEREUM ATTENUATUM.—This is quite a thin little species, the smallest known. Excepting as to size, however, it is about the same as the preceding. Specimens from:

Japan—A. Yasuda.

PSEUDO THELEPHORACEAE.

PHLEBIA STRIGOSO-ZONATA (Auricularia strigoso-zonata Schw. McG.). It develops that there is a widely distributed plant through the world which has the general texture and appearance of a Stereum but

a section appears quite different under the microscope. I notice that Bresadola has recently determined it to have "cylindrical, subclavate basidia 4-5 x 30-35" and puts it in the genus Auricularia, calling it Auricularia reflexa. I think it should not be included in Auricularia as it does not have the soft, gelatinous texture that we associate with the Tremellaceae. It reached Berkeley abundantly from Australia and he gave it two names, Phlebia reflexa and Phlebia hispidula, and Cooke called it Stereum lugubre. I think Cooke must have known that his Stereum lugubre was the same as Phlebia reflexa for he named other specimens of same collection Phlebia reflexa and kept all in the same cover. Subsequently Massee discovered that it was a "new species" and called it Auricularia Butleri. In addition, Bresadola cites Phlebia rugosissima Lév. and Auricularia sordescens Ces. as synonyms. But exactly the same plant occurs in the United States and we have our contributions to offer to this interesting collection of discoveries, and one of them is said to be the "prioriest" of all. Schweinitz named it Merulius strigoso-zonatus, which seems to have been skipped in Saccardo's compilation. Peck called it Phlebia pileata, and Berkeley in addition to the name he gave it from Australia called it from the United States Phlebia rubiginosa and Phlebia zonata. It will be noted that most of our discoverers put it in the genus Phlebia, and this genus (excepting as to basidia which have not been shown to be different) is where it belongs on its hymenial configuration when fresh. In drying, the folds and wrinkles largely disappear, but the hymenium is usually uneven and ridged in the dried specimens. We could never see why Phlebia however is classed in Hydnaceae. To our minds it should go in the Thelephoraceae.

When fresh the plant has a reddish-brown hymenium becoming very dark (almost black) in the dried specimens. When soaked up a section shows a uniform, homogeneous, compact tissue without a distinct, hymenial layer. According to my notes, I suspected that the plant did not have ordinary basidia before that fact was published.

In addition to the interesting mistakes that have been made in naming it, its distribution is next of interest. I have seen it from the United States, Japan, Philippines, Java, Australia, and Africa, but it appears to be absent from Europe. We have several collections from United States, and the following from foreign countries:

Australia—H. B. Williamson and Edmund Jarvis.
Madagascar—Henri Perrier de la Bathie.
Japan—Prof. A. Yasuda.

SPECIMENS THAT I DID NOT FIND NAMED IN THE MUSEUMS.

I have little doubt that the following are unnamed species, at least I have not found them in any of the museums. I would not wish to publish them as such, however, until I have given the Stereums further investigation.

No. 1.—Species common in Australia, which Berkeley referred to albo-badium of United States. Similar as to color but very different as to "structure." The Australian plant has "dendrophytes." I have specimens from Miss E. J. Turner, Rev. James Wilson, Edmund Jarvis, and Albert Green, all from Australia.

No. 2.—Similar as to appearance to No. 1, but also different structure. This is a "Lloydella."

Caversham, N. Z.—W. A. Scarfe.

No. 3.—Similar in color and appearance to Stereum ochraceo-flavum of United States, and so named when received. I find it has "metuloids" however, and is a "Lloydella," which ochraceo-flavum has not.

Hawaii—C. N. Forbes.

No. 4.—Beautiful white species from unknown donor, India, with coarse, strigose fibers. I know none at all similar.

No. 5.—Specimen from Botanical Garden, Saharanpur, India, which was named for me "Stereum duriusculum Berk." but which I find to have no resemblance whatever to the type.

No. 6.—Species with hymenium that reddens, but pileus surface like sericeum. Referred by me to spadicea when received, but evidently different.

Japan (two collections)—Jintaro Umemura.

No. 7.—Close to Stereum spadiceum.

Madagascar—Henri Perrier de la Bathie.

No. 8.—Very close to Stereum cinerascens (Lloydella). Differs in brown tomentum on pileus.

Java—J. P. Mousset.

No. 9.—Stereum determined as Stereum spadiceum when received. Hymenium clear yellow, reddening on being scratched, but no "lactiferous ducts" found. Color *light*, tawny, much lighter than spadiceum.

South Africa—I. B. Pole Evans.

STIPITATE.

No. 10.—Stipitate, infundibuliform, pale brown lobed or incised. Surface striate, fibrillose.

Japan—A. Yasuda.

No. 11.—Stipitate, white when fresh, close to decolorans but not same on comparison. I gathered it in Samoa.

SECTION HYMENOCHAETE.

No. 12.—Sessile, with narrow, concentric zones, of appressed pubescence. Color and setae same as usual in this section. Specimen from:

Japan—A. Yasuda.

ADVERTISEMENTS.

The following personal names can be added to the foregoing plant names by those who believe in this style of advertisement.

Stereum attenuatum, Léveillé; aurantiacum, Persoon; bicolor, Persoon; caperatum, Montagne; cyphelloides, Berkeley; Damaecorne, Link; elegans, Meyer; fasciatum, Schweinitz; ferreum, Berkeley; floriformis, Bresadola; hirsutum, Willdenow; involutum, Klotzsch; Leveilleanum, Berkeley; lobatum, Swartz; luteo-badium, Fries; membranaceum, Fries; Miquelianum, Montagne; Neo-caledonicum, Patouillard; percome, Berkeley; princeps, Junghuhn; pusillum, Berkeley; rimosum, Berkeley; simulans, Berkeley; spectabile, Klotzsch; surinamense, Léveillé; tenuissimum, Berkeley; vellereum, Berkeley; villosum, Léveillé.

Phlebia strigosa-zonata, Schweinitz.

LETTER No. 47.

Report on specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
37 Holmes Road,
Twickenham, England.

Cincinnati, Ohio, November, 1913.

ALLEN, MISS LIZZIE C., Massachusetts:

Hydnum compactum, (see Note 84).—Polystictus versicolor.—Polyporus lucidus.—Hydnum velutinum.—Stereum bicolor.—Thelephora radiata.—Xylaria polymorpha.

Lenzites corrugata. Two plants exactly the same, although the hymenium is so different. A very polymorphic species as to hymenium shape. —Lepiota Allenae. Cotype.—Cyathus stercoreus.—Stereum spadiceum.—Polyporus circinatus.—Polystictus cinnabarinus.—Poria Tulipifera, probably incipient.—Polyporus adustus.—Polystictus conchifer.—Polyporus brumalis. —Hydnum septentrionale.

AMES, F. H., New York:

Irpex cinamomeus.—Polystictus pergamenus, abnormal.—Polyporus gilvus, abnormal.—Polyporus Spraguei.—Stereum sericeum.—Lenzites betulina, thick form.—Stereum spadiceum.—Tremella mesenterica.—Polyporus adustus var. fragrans.—Hydnum nigrum.

BALLOU, W. H., New York:

Hypocrea lateritius.—Polyporus Schweinitzii.—Polyporus circinatus.—Polyporus giganteus.

BLACKFORD, MRS. E. B., Massachusetts:

Hydnum vellereum.—Daedalea unicolor.—Stereum hirsutum?—Hydnum adustum.—Hydnum ferrugineum, (see Note 85).—Hydnum scobiculatum (see Note 85).—Stereum sericeum.—Daedalea confragosa.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
LOAN PERIOD

BRACE, L. J. K., Bahamas:
Trametes hydnoides, effete.

BRANDEGEE, T. S., California:
Tylostoma campestris. (Sand hills near San Francisco.)

BROWN, GEORGE, New Zealand:
Geaster limbatus.—Stephensia bombycina (or close). Determined by Miss Wakefield.—Pleurotus (species).

BROWN, GEORGE, Pitcairn Island:
Schizophyllum commune, stalked form.—Clavaria persimilis.—Clavaria Bizzozeriana (prox.).
The Clavarias determined by A. D. Cotton.

CAMPBELL, MISS E., New South Wales:
Polystictus sanguineus.—Polystictus versicolor.—Polystictus hirsutus.—Stereum hirsutum.—Polysaccum pisocarpium.—Fomes leucophaeus, undeveloped.
Lentinus fasciatus. This species is known only from Australia. It is a beautiful plant.—Polystictus lilacino-gilvus.—Trametes lactinea.
Polystictus-Trametes. That I can not place. The specimens from Miss Campbell were nicely selected and preserved.

CARL, EMMA J., Ohio:
Polystictus cinnabarinus.

CHEESEMAN, W. N., England:
Trametes cervinus.—Daedalea unicolor, form cinerea.

CRADWICK, WM., Jamaica:
Marasmius (sp.)

DAS BASHAMBAR, India:
Fomes australis (?). Young. This has same context color, and yellow pore mouths as australis and I think a very young specimen.
Polyporus lucidus? This is the common plant I get from the tropics, which I call Polyporus lucidus as there is no other name for it. It is quite close to the European species, but I think not the same.
Polyporus, species not recognized by me.
Hirneola auricularis. This is the same as Hirneola auricula-Judae, but smooth. This specimen is not perfectly smooth, but very minutely velutinate, hence intermediate.
Polyporus inamaenus, only an indurated Polyporus gilvus.

DAVIS, SIMON, Massachusetts:
Polyporus albellus.—Peziza macropus, (cfr. Boudier's Icones, t. 239). Peziza (Discina) leucoxantha, (cfr. Boudier's Icones, t. 253). Peziza (Lachnea) Sp.?—Bovista pila.

DUNCAN, S., New Zealand:

Daedalea glabrescens.—Polystictus iodinus.—Geaster saccatus.—Daldinia concentrica.—Polystictus cinnabarinus.—Calvatia lilacina. Sterile base.

Fomes fraxineus? This is undeveloped, but has the same context as fraxineus of Europe.—Fomes australis.

DUPONT, E., Reunion:

Daldinia concentrica. A large specimen over two inches in diameter.

DUTHIE, A. V., South Africa:

Polyporus Oerstedii. This is the same as Polyporus lucidus in every respect except the absence of a stipe.—Stereum hirsutum.—Thelephora terrestris.

Polystictus (Sp.) that I do not know as to species although I have received nearly the *same plant* from *Northwest Canada* (!!).—Stereum lobatum.

Arachnion album. One of the rarest and most curious of puff balls. (Cfr. Myc. Notes, page 253.)—Scleroderma flavidum.—Merulius lachrymans.—Trametes hispida.—Scleroderma verrucosum.

Tylostoma cyclophorum. A species originally received from Miss Stoneman, South Africa. (Cfr. Monograph, page 25, plate 85).

Fomes (Ganodermus) applanatus, form with a hard, sulcate crust and substipitate. The sorting of these exotic forms of Fomes applanatus is a most puzzling problem.—Polyporus sulphureus.—Lenzites repanda.

Podaxon carcinomalis. This was one of the first species of Podaxon to reach Europe, having been sent in by one of Linnaeus' students from South Africa. It grows often on ant hills, and in olden days had a reputation among the natives as a cure for ulcers.

FAWCETT, H. S., California:

Fomes robustus, on Eucalyptus. This species, on Oak in Europe, is rare in the United States and is found only in our western States as far as I know.—Daldinia concentrica.—Fomes applanatus.

GARMAN, H., Kentucky:

Peziza or other Discomycetes. Supposed to have caused sickness in a child, but probably an error.

GARNER, W. G., New Zealand:

Aseroe Hookeri.—Pseudocolus Archeri. (See Note 86.)

GILLET, REV. J., S. J., Africa:

Epichloe Schumanniana. Determined by A. D. Cotton.

HADLEY, ALICE M., Vermont:

Polyporus squammosus.

HANMER, C. C., Connecticut:

Calvatia rubroflava.—Geaster rufescens.

HARIOT, P., from Henri Perrier de la Bathie, Madagascar:

Ganodermus mangiferae. This species was not, but should have been, included in my Stipitate Polyporoids. It is quite close to mastoporus and may be the same thing. The only difference I can note is that the pore mouths are pale, while they are always dark in mastoporus, even when young.

Fomes australis with *yellow* pore mouths.—Polyporus pruinatus.—Polystictus gallo-pavonius.—Polystictus caperatus.—Daedalea quercina.

Trametes roseolus. A beautiful species compared with the type at Paris. It is said to be same as Polyporus Afzelius, of which no type exists. —Fomes Haskarlii.— Fomes pectinatus.—Polyporus (Glaeoporus) candidus, a white form of conchoides.—Polystictus gallo-pavonius, (pale form).— Hexagona tenuis.—Fomes lignosus (annual).

Polyporus megaloporus. When young it is a Polyporus, when old tends towards Favolus. Setae are very peculiar (cfr. Stipitate Polyporoids, fig. 441).—Polyporus durus.—Fomes applanatus.—Polyporus modestus. Compared, and same as the "cotype" of "atypus" at Paris= bruneolus of Montagne not Berkeley.—Polystictus versatilis.

Polyporus anaebus. Compared with cotypes in Montagne's herbarium. It is smoother but for me the same species as pruinatus.—Fomes pullus. Compared with type in Montagne's herbarium. A unique little species. Setae none. Spores not found, no doubt white.

HOLDEN, WM., North Carolina:

Polyporus salignus?—Ustulina vulgaris, conidial form.—Polyporus arcularius.—Polyporus amorphus.—Polystictus sanguineus.—Polystictus pergamenus.—Polyporus gilvus.—Lentinus strigosus.—Polystictus hirsutus.— Lenzites betulina.—Polyporus adustus.—Stereum fasciatum.—Tremellodendron pallida.—Fomes annosus.—Fomes reniformis.—Polyporus giganteus.

Scleroderma Geaster. A liberal collection, unopened.—Fistulina hepatica.—Polyporus Schweinitzii.—Favolus europaeus.—Polystictus versicolor.—Bulgaria inquinans.—Clavaria botrytes.—Polyporus sulphureus.

LEEUWEN, DR. VAN, Java:

Dichonema sericeum. Named by Monsieur Hariot. It is in Saccardo as a Rhipidonema, but is a lichen.—Polystictus xanthopus.—Nummularia (sp.).—Polyporus fumosus? Seems a little different from the European plant.

Fomes (Ganodermus). Quite close to Fomes leucophaeus, but I am satisfied that it is different. It is heavier, harder, more minute pores, and has a tendency to form a stipe. Spores are smaller, 6 x 8. I have an ample collection of same species from Dr. J. C. Koningsberger, Java.

LIND, J., Denmark:

Daedalea confragosa (form Bulliardi).—Polystictus versicolor.

MACOUN, JOHN, Canada:

Hymenochaete spreta.—Stereum (Hymenochaete) tabacinum.—Polyporus adustus.—Polystictus hirsutus.—Lenzites saepiaria.—Polystictus versicolor tending to zonatus.—Polystictus zonatus if different from versicolor.—

Dacryomyces aurantia.—Crucibulum vulgare.—Xylaria Hypoxylon, (cfr. Letter 45, Note 66).—Corticum, (cfr. amorphum).

Also a number of specimens of Poria, Hypoxylon, Corticum, etc., genera of which I do not know the species.

MELBOURNE BOTANIC GARDENS, Australia:

Polystictus sanguineus.

Polyporus (Amaurodermus) rudis. (Compare Stipitate Polyporoids, page 111, fig. 403.) A rather frequent species in Australia and too close to Polyporus rugosus of the East.—Geaster saccatus. This is the form with a firmer exoperidium, named Geaster coriaceus by Colenso, from New Zealand.

MEMMINGER, ED. R., North Carolina:

Myriostoma coliforme.—Geaster pectinatus.—Irpex pachydon.—Polyporus arcularius.

Cordyceps capitata. These specimens are not "capitate" as are all specimens I have seen in Europe of this species. They are same form as Cordyceps ophioglossoides of Europe. The distinction between these two species is a marked spore difference as shown by Tulasne. There is also a difference in the method by which they are attached to the host.—Geaster floriformis.

MERRILL, E. D., Philippines:

I have been favored with an ample collection of Philippine specimens through the courtesy of Mr. E. D. Merrill, Botanist of the Bureau of Science, Manila, Philippines. These specimens were mostly named by Rev. Bresadola, and as I consider Rev. Bresadola the only mycologist in Europe who has made a critical and historical study of foreign fungi, the specimens are mostly labeled in my museum under the names as received. In some instances I do not adopt the names, but these are mostly cases of difference of opinion due to variation. In some cases the difference comes from questions of "priority," for the haphazard way in which the same species have been given names by the old botanists leads to much doubt about "who saw it first?" and in some instances the man "who saw it first" did not know enough about it to name it decently. This is particularly true in the line of the bungling work of Lèveillè. A few cases of discrepancy rest on the "authenticity" of "types." Thus there is doubt about most of Lèveillè's types at Leiden for they were not labeled, and at Paris, where he did label the specimens, the "cotypes" are not always the same species as the "types" at Leiden. I list the plants as I have labeled them in my museum, and have indicated in parenthesis the names under which they were received. The numbers indicate the number of collections. In addition there are about twenty collections (not listed) which I have not yet found time to work with.

Phlebia strigoso-zonata, (2), (reflexa).—Calvatia lilacina, (1).—Daldinia concentrica, (1).—Polystictus flavus, (1) (Irpex).—Auricularia mesenterica, (2).—Hirneola auricula-Judae, (1).—Hirneola polytricha, (2), (ampla).—Polystictus affinis var. melanopilus, (2), (for me a pale form.)—Polystictus flabelliformis, (2), (flabelliformis, luteus).—Polystictus affinis, (9), (luteus, pterygodes, nepholodes).—Polystictus xanthopus, (4).—Poly-

stictus carneo-niger, (3), (microloma, celebicus).—Polystictus luteus, (2), (crenatus, but entirely different).—Stereum involutum, (1). Very doubtful to me.

Stereum lobatum, (5), (bicolor evidently error of enclosure, f. concolor, ostrea).—Stereum tenuissimum, (1), (attenuata).—Polystictus cichoriaceus, (1), (Hexagona tabacinum).—Hexagona resinosus, (1).—Polystictus Persoonii, (6), (corrugatus).—Daedalea confragosa, (1).—Trametes gibbosa, (2).—Corticium caeruleum, (1).—Septobasidium bogoriense, (1).—Polystictus cervino-gilvus, (3), (dermatodes).—Hexagona tenuis, (8), (bivalvis, pulchella).—Hexagona Deschampsii, (1).—Hexagona apiaria, (3), (Wrightii).

Lenzites ochroleuca (cfr. Hexagona pamphlet, page 31), (13), (Daedalea tenuis, Daed. subconfragosa, Daed. pruinosa, Daed. lenzites, Daed. flavida).—Trametes ochroleucus, (2). Trametes form of previous. (Hexagona glabra, Daedalea Hobsoni).—Lenzites repanda, (8), (Palisoti, indica).

Polyporus (Ganodermus) ochrolaccatus, (2). This is a marked and rare species (cfr. Stip. Polyp., page 105. All specimens I have noted in the various museums of Europe are the original collection from the Philippines by Cummings, made many years ago.

Cantharellus buccinalis, (1), (partitus).—Lentinus praerigidus, (1), (Kunzianus).—Lentinus sajor caju, (3).—Xerotus nigrita, (1), (Anthracophyllum).—Lentinus connatus, (2), (exilis).—Polyporus semilaccatus, (4).—Lentinus strigosus, (1), (Panus rudis).

Fomes australis. The tropical forms of Fomes applanatus have in the past been usually referred to Fomes australis. Numerous specific names have been proposed, but whether it is practicable to definitely separate them is a doubtful problem. Some day we hope to make a trial of the many specimens that have accumulated in our museum. In the meanwhile we label them all as above. (9). (subtornatum, australe, applanatus.)

Polyporus sulphureus. (2). (One as Polyporus miniatus, cfr. Stip. Polyp., p. 154.)—Polyporus grammocephalus, (2).—Fomes melanoporus, (4).—Fomes pinicola, (4), (ungulatus).—Fomes Kermes, (1), (Fomes albomarginatus, cfr. Letter 36).—Polyporus zonalis, (2).—Lenzites subferruginea, (4).—Lenzites nivea, (2), (platyphylla).—Lenzites betulina, form? (1).—Polyporus durus, (2).—Polystictus tabacinus, (3), (microcyclus).

Polystictus benquetensis, (1), very poor specimen. It is quite close to circinatus.—Polystictus occidentalis, (2).—Polystictus obstinatus, (3), (Meyeni).—Polyporus rubidus, (3).

Polyporus Didrichsenii, (2). Received as atypus Lèveillè, no type of which exists (cfr. Letter No. 36), and the specimen so labeled by Lèveillè at Paris is not this plant. There is a cotype of Polyporus Didrichensii at Kew from Fries.—Polystictus abietinus, (1).—Polystictus elongatus, (1).—Polystictus sanguineus, (5).—Geaster hygrometricus? (1).—Schizophyllum commune, (4).

Craterellus diamesa, (1). ("Type locality" as "Thelephora" (sic). It is probably same as Craterellus cantharellus.)

MORRIS, GEORGE E., Maine:

Hydnum geogenium, (see Note 87).

OLESON, O. M., Iowa:

Polyporus arcularius.—Polyporus sulphureus.—Favolus europaeus.—Tremella frondosa.—Exidiopsis alba, (See Note 48, Letter 44).—Polyporus picipes.—Trametes sepium.—Hydnum pulcherrimum.—Hirneola auricula-Judae.—Fomes (Ganoderma) reniformis.—Fomes pomaceus.—Fomes fraxinophilus.

Fomes (Ganodermus) reniformis, I think. If not it is Fomes applanatus. It is hard to tell Fomes applanatus from Fomes reniformis unless the specimen is stratose showing it to be a perennial, or has a dead last year's growth with it showing that it is an annual.—Tremella foliacea.—Polyporus gilvus.

From California:

Fomes pomaceus, on sycamores. Usually on plum trees.—Poria ambigua.—Fomes applanatus.—Tremella lutescens.—Polyporus gilvus.—Fomes gilvus. (See Note 88).—Stereum hirsutum?

PAZSCHKE, DR. O., Dresden:

An historical lot, including specimens from Rabenhorst's exsiccata and several from South Africa of Kalchbrenner's naming.

From Africa:

"Polystictus vibecinus" as determined by Kalchbrenner, and which agrees with specimen so determined by Kalchbrenner at Kew. No type exists of Polystictus vibecinus and its identity is unknown. I know no other name for the plant, however.—Schizophyllum commune as labeled.

From China:

Polystictus occidentalis.—Fomes ribis. Seems to me close if not the same as the European species.

From Europe:

Poria lenis. Cotype, but I do not know critically the species of Poria.—Fistulina hepatica.—Polyporus mollis, (as P. Weinmanni Fr., a synonym for me).—Radulum laetum. (Not R. molare as labeled, a misdetermination).—Lenzites betulina.—Irpex obliquus.

From Portugal:

Polystictus occidentalis. (Typical specimen).—Polystictus biformis. Same as American plant.—Hydnum adustum. Same as American plant.

I think Polystictus biformis is known in Europe, but this is the first time Hydnum adustum is known to me from there.—Polystictus versicolor.

From United States:

Polyporus pocula. Raben. 3328 as cupulaeformis. A synonym.—Polystictus pergamenus. Rab. 3331 as named.—Hydnum adustum. Rab. 3124 as named.—Polyporus resinosus, as named.—Daedalea ambigua. Rab. 3334 as D. glaberrima.—Hydnum erinaceum. Rab. 3641.—Polyporus giganteus (not frondosus as labeled, a misdetermination).—Polyporus dichrous (=purpurascens).—Daedalea confragosa, (=Lenzites Crategi).

PLITT, CHAS. L., Maryland:

Favolus europaeus.—Urnula craterium.

RICK, REV. J., Brazil:

Polyporus Feei.—Lenzites erubescens (See Note 89).—Polystictus membranaceus.—Daedalea stercoides.

Hydnum spongiosum. Cotype. An excellent species belonging to a section of the genus not represented in Europe or United States.—Ganodermus Oerstedii = pachyotis Speg. teste Rick, resinosus Pat. in Europe, and sessile Murr. in the United States.—Ganodermus renidens, (see Note 90).—Polyporus fruticum.—Polyporus Blanchetianus.—Polystictus licnoides, very thin form.—Hydnum rawakense.—Lachnocladium compressum as named by Rev. Rick.—Lachnocladium (sp.).—Merulius tremellosus.

SCHULTZE-WEGE, MADAME, Germany:

Fomes leucophaeus.—Daedalea gibbosa.—Panus torulosus.—Lenzites saepiaria.—Stereum hirsutum.—Polystictus versicolor.—Merulius tremellosus.—Polystictus perennis.

Sistotrema confluens. Sent as Polyporus rutrosus which is a doubtful species only known from Rostkovius' old figure. (Cfr. Stipitate Polyporoids, p. 130.) Sistotrema confluens has in a general way some resemblance to this old figure, but is much smaller, and has irpicoid pores. Only recently one of our American "experts" who apparently does not know a Polyporus from a Hydnum, discovered that Sistotrema confluens belonged to the genus Hydnum (sic.).—Helvella crispa.

SMITH, THEO. L., Massachusetts:

Polyporus sulphureus.—Mitrula paludosa.

STORER, MISS E. D., Georgia:

Merulius Corium. Specimen in its prime color and a fine species in this stage. These are the first specimens I ever saw of this species so brightly colored.—Stereum fasciatum.—Polystictus hirsutus.—Stereum albo-badium.—Polystictus versicolor.—Lentinus strigosus.—Polyporus Curtisii.

STOWARD, DR. F., Australia:

Polysaccum pisocarpium.

TEPPER, J. G. O., South Australia:

Fomes. Probably unnamed, small, ungulate, with deep, narrow, sulcate rings. Spores globose, 5 mic., colored. Setae none. Close to rimosus.

Calvatia rubroflava.—Polystictus cinnabarinus.—Polyporus ochroleucus.

WALKER, S. B., Colorado:

Lycoperdon pyriforme, growing on moss.—Lycoperdon (Sp.).

WHETSTONE, DR. M. S., Minnesota:

Clavaria cinerea.—Stereum spadiceum.

WILDER, MRS. H. E., California:

Polyporus Schweinitzii, dimidiate, imbricate.—Lycoperdon gemmatum. —Lycoperdon fuscum.

YASUDA, PROF. A., Japan:

Polystictus iodinus.—Rhizopogon rubescens.—Fomes connatus, young.—Thelephora spiculosa.—Rhizina undulata.—Cantharellus floccosus. An American species.—Lenzites striata.—Lenzites subferruginea.—Irpex. Unnamed I believe.—Stereum Burtianium. (See Note 91.)

Trametes comfragosa, unnamed form. Compare Note 55 in Letter No. 44. We do not have this form in America.—Daldinia concentrica, form tending towards vernicosa.—Trogia crispa.

ZENKER, DR. G., Africa:

Polystictus incomptus. Quite frequent in Africa.

Stereum affinis. (See Note 92.)

THE LENTINI OF OUR MUSEUM.

(By C. G. Lloyd, written at Kew, April, 1913.)

Recently, while at Kew we studied the species of Lentinus which we have received from foreign collectors in comparison with the abundant collections and historical material preserved at Kew. We have since worked over the specimens, at Leiden, Berlin, and Paris, which include about all the historical specimens except a few in Fries' herbarium at Upsala.

We shall not trouble to define what distinction should be made between Lentinus and Panus, for we do not know. The original definition of Lentinus included the dry, persistent Agarics with equal gills, or if unequal, serrate. In Fries' Epicrisis, he restricted this definition to species with "dentate or lacerate" gills, but this definition only applies to a few of the species that he lists in the genus. We accept Lentinus in the meaning that it has acquired by use, viz., Agarics of a dry, persistent nature, reviving when moist, and having the gills mostly subequal, or if unequal, serrate. The line is not sharply drawn between Lentinus and Panus, though in theory Panus should have unequal gills with entire edges. We find we have received the following species of Lentinus from correspondents.

LENTINUS VILLOSUS (Type at Kew). This species, originally from Mauritius, is widespread in the tropics and very common in American tropics. When young it has long, cirrose hairs on the margin, but when old these hairs are to an extent detersive, and rarely specimens become bald with age. Usually, however, these long hairs are a marked feature of the plant. The stem is scaly when young with a tendency to become smooth and dark. (For Fries it is then Lentinus nigripes.) The color is brown. The plant reached Berkeley abundantly from the American tropics and he referred it usually to villosus. He named it also Swartzii, crassipes, siparius, Wrightii, subcervinus, rigidulus, and Schomburgkii, and also determined it as being crinitus and tener. Léveillé named it fumigatus according to his type at Paris. There are at Kew a few specimens from India and a few from Africa.

Specimens from Florida—Mrs. M. A. Noble, C. G. Lloyd; Louisiana—A. B. Langlois; Southern California—T. S. Brandegee; West Indies—Wm. Cradwick, Thos. Langton, H. Miller; Central America—S. Schumo; Brazil—G. Peckolt, M. L. Demazio; Africa—Rev. J. Gillet, J. M. Wood.

LENTINUS STUPPEUS. From the nature of the hairs this is the same as villosus but the color is dark, almost black. It is apparently an African species only. I have heretofore referred it to cirrosus, which is probably same species. I have specimens from Madagascar—Henri Perrier de la Bathie (three collections).

LENTINUS NICOTIANA is for me only a form of Lentinus stuppeus with the hairs fasciculate, into scale-like bundles.

LENTINUS VELUTINUS. Color brown. Stem densely and persistently hirsute, velutinate. Pileus with similar covering but on the margin the hairs are longer and rigid. A most common species in tropical America, more rare in Africa and the East. I have species from Theodore Stuckert, Argentine; Leon Castillon, Argentine; Dr. Anna Brockes, Brazil; Donor unknown, India; Henri Perrier de la Bathie, Madagascar; S. Hutchings, Bengal.

LENTINUS EGREGIUS of Australia is quite close to velutinus but is a larger plant with narrow, close gills. It is only known from the type.

LENTINUS DICHROUS. There is no material at Kew, but my collection from Samoa has been so determined. It has the same velutinate stipe as velutinus, but hairs on the pileus are more reduced and scabrous. It is also a smaller and more slender species. Lentinus dichrous was based on an old Zollinger collection which I have not located, but I know no other name for the Samoa collection.

LENTINUS BLEPHARODES. This species of the American tropics has been confused both with velutinus and with similis of the East. It is intermediate, different from velutinus in having a usually *striate* pileus, also yellowish, *more distant* gills. It is frequent in the American tropics, and was originally from Cuba. I have a specimen from the East determined as Lentinus braccatus which is probably the same thing. Specimen from Gustavo Peckolt, Brazil, and Botanical Garden, Saharanpur, India.

LENTINUS SIMILIS. This species is very similar to blepharodes as to the pileus. It occurs only in the East, not in the American tropics, but the Ceylon specimens were mostly misreferred by Berkeley to Lentinus blepharodes. It differs from blepharodes in the covering of the stipe *not* being velutinate but has a spongy, matted covering, as first pointed out by Petch. Berkeley also misreferred one Ceylon collection to Lentinus badius, a glabrous species of the Philippines. I have a collection (old and effete) from M. A. D. Machardo, Perak. I have also one specimen that I collected in Samoa, where it must have been very rare as I only found one specimen.

LENTINUS FULVUS. Color dark brown. Stipe strongly hirsute, velutinate. Pileus hispid, hirsute. This species, known at Kew only from Australia, could be regarded as an exaggerated velutinus, same general

type of plant but much stronger, more hispid pileus. I have no specimen of this.

LENTINUS FASCIATUS. As to hairs same exactly as Lentinus fulvus, but the color is *light* tawny, and it seems so different in this respect, that on the color alone it may be maintained as different. Only known from Australia, and called also by Berkeley Lentinus holopogonius. I have a fine collection from an unknown correspondent in Australia.

LENTINUS STRIGOSUS. This is a frequent, American species and the only one we have in this hirsute section, excepting Lentinus velutinus and Lentinus villosus, both of the extreme South. Lentinus strigosus occurs as far North as Canada. In American mycology, although an evident mistake, this species passed for years as being Lentinus Lecomtei and it is only recently that it has been called anything else. Years ago having decided it could not possibly be Lentinus Lecomtei, I sent it to Bresadola, who referred it to Panus rudis and this name has been lately much used by myself and others in America. It is "Panus rudis" of Western Europe, but why a Panus I can not explain. Surely it is the same genus as the preceding species. It is the only Lentinus (of this hirsute section) that grows in Europe and it occurs frequently only in the Western Europe, particularly Hungary and Austria. That it is Lentinus strigosus of Schweinitz there is no possible doubt. It is a plant of wide distribution. I have it from Samoa, also Madagascar from Perrier de la Bathie, and have referred here (with doubt) a collection from Albert Green, Australia, and one from A. Yasuda, Japan.

LENTINUS PRAERIGIDUS. This is a noteworthy species of the East, quite frequent and very distinct from any species of the American tropics. It has an even, minutely tomentose pileus, sometimes breaking into scales when old, and very *dark*, rather broad, and distant gills. Berkeley called it praerigidus, estriatus, and Thwaitesii. Currey called it Kurzianus and determined it also as furfurosus of Fries (which I presume no one knows). Léveillé sent a specimen to Kew labeled polychrous, but his specimen at Paris is not the same species. I have a specimen from S. Hutchings, Bengal. The very dark color of the gills, which is the most salient character, is assumed in drying. When moistened they are a much lighter brown. Spores (secured in abundance from Mr. Hutchings's specimen when received) are hyaline, cylindrical, straight, 3½ x 10 mic.

LENTINUS SAJOR CAJU. Pileus with a veil that often remains as a ring at the base of the gills, hence it belongs to the "genus" Lentodium, not in the sense of the man who made the genus Lentodium (Morgan) for he had no such idea and would have resented being so misrepresented, but in the perverted sense of the writer who used Morgan's generic name as a convenient juggle. Lentinus Sajor Caju is a most abundant species in Africa and in the East, but does not occur in the American tropics. It is the only foreign species known to me that has a ring. It is yellow, always glabrous, with broad, rather distant, yellow gills.

Rumphius gave a crude but evident figure of it with an indication even of the scar left by the ring. Fries correctly interpreted Rumphius'

crude figure and his specimen is evidence at Kew. Klotzsch called the plant Lentinus exilis and this name was generally used by both Berkeley and Cooke, and many collections so labeled are at Kew. Currey called it Lentinus irregularis. Léveillé with his habitual inclination to call everything a "new species" that he did not know, and he did not know many, named it Lentinus dactyliophorus, which name has been mostly used at Paris. Murrill elucidated the subject by referring exilis to an American species (though it does not grow in America), Agaricus hirtus, described as having a stipe "1-2 lines" (sic) long (one or two inches would more nearly fit it), and surface "setoso-hirtus." The surface of Lentinus exilis is always as smooth as a billard ball. Either Murrill made a very bad guess or Fries gave a very bad description. I have a dozen or more collections of this common species from the following correspondents:

S. Hutchings, Bengal; A. D. Machardo, Perak; Museum Paris, New Caledonia; Rev. J. Gillet, Congo; Dr. G. Zenker, Kamerun; H. Perrier de la Bathie, Madagascar; Dr. K. Braun, German East Africa; Miss A. V. Duthie, Transvaal; J. Medley Wood, Natal; P. Koenig, Mauritius.

LENTINUS VELLEREUS. Color yellowish (when dry) with dark, rather broad gills. Surface *velvety* or *tomentose*. Specimens from A. A. Evelyn, Barbados, sent with the next species, which is alleged to be same but the statement is to me most dubious.

LENTINUS SCLEROPUS. Color yellowish, *glabrous*, with rather broad gills. This is the same as the preceding excepting as to surface. Statement has been published that it is the same species. I much doubt it. It appears quite common in the American tropics judging from the number of times it has been discovered to be a "new species" (about a dozen). Persoon named this plant from Gaudichaud's collection in Brazil, and the type is in good condition at Paris. Murrill takes the name Lentinus hirtus as the valid name for the species, although years subsequent to Persoon's name. Can it be possible that Murrill has joined issues with the band of conspirators at Brussels and excludes poor old Persoon from the benefits of "those sacred rights of priority?" Lentinus infundibuliformis the type (almost destroyed) from Central America seems to be same as scleropus, but the determination from the East are obviously a different species. I have one specimen of scleropus from A. A. Evelyn, Barbados.

LENTINUS REVELATUS. This is much the same as scleropus of the American tropics, but differs in very narrow, close gills. I have collections made in Samoa. The types of revelatus have much longer stalks and several are more infundibuliform than my collection, but I prefer to so refer them rather than propose a new species.

LENTINUS SCLEROTICOLA. The species of Lentinus that are developed from a tuber have not been studied in detail by me. The most common one, in Africa at least, is Lentinus Tuber regium supposed to have been originally illustrated by Rumphius, but if so, very crudely. I collected one in Samoa, that is surely Lentinus scleroticola as named by Murray, but as to the relative value of the five or six specific names of Lentinus from tubers, I have made no studies.

LENTINUS SUBNUDUS. Pileus usually infundibuliform, smooth, white, discoloring when old. Gills close. This seems quite a frequent species in the East. I have it from C. B. Ussher, Straits Settlements; J. P. Mousset, Java, and have collected it in Samoa. It has probably other names as Panus and the following as Lentinus are in my opinion all the same: cretaceus, inconspicuus, lobatus, coadunatus, and caespitosus of Currey changed to Curreyanus. There are other synonyms at Berlin and Paris.

LENTINUS TIGRINUS. A collection from S. N. Ratnagar, India, seems to be this species of Europe.

LENTINUS TORULOSUS. In Fries as Panus, but I can not see how it is to be distinguished generically from previously listed plants. I have a collection from Dr. J. Dutra, Brazil, which is more slender but otherwise seems to me the same as this species as I know it in Europe.

LENTINUS CONNATUS. This is quite a distinct species in the East and is found in several museums having been distributed in Zollinger's exsiccatae from the Philippines, though Berkeley afterward referred several collections to Lentinus infundibuliformis, a quite different plant that he had named (several times) from the American tropics. Léveillé called it Lentinus javanicus and Cesati, Lentinus Beccarianus. I have a specimen from the Philippines sent to me while at Kew for comparison.

LENTINUS (species), I have a collection from Joges Ray, India, that I did not find named.

LENTINUS (species unnamed I believe). This was sent to me at Kew for comparison. It came from the Philippines, and in the recent list of Bresadola appears as Lentinus polychrous, Léveillé. No type of Lentinus polychrous is found (at Leiden) and the specimens that Léveillé sent to Paris and to Kew are different species, so that I think the name can not be used with certainty. Judging from Léveillé's description the plant at Kew (which is the same as Lentinus praerigidus) is the cotype.

ADVERTISEMENTS.

The following personal names can be added to the foregoing plant names by those who believe in this form of advertisement.

Lentinus blepharodes Berkeley, connatus Berkeley, dichrous Léveillé, egregius Berkeley, fasciatus Berkeley, fulvus Berkeley, Nicotiana Berkeley, praerigidus Berkeley, revelatus Berkeley, Sajor Caju Fries, scleroticola Murray, scleropus Persoon, similis Berkeley, strigosus Schweinitz, stuppeus Klotzsch, subnudus Berkeley, tigrinus Bulliard, torulosus Persoon, villosus Klotzsch, vellereus Berkeley, velutinus Fries.

NOTE 84.—**Hydnum compactum**, from Miss Lizzie C. Allen, Newtonville, Mass. This specimen, received fresh, I was very glad to get, as it is a species I have never collected and it has been confused with Hydnum aurantiacum and Hydnum caeruleum. It it quite different from Hydnum aurantiacum as I know it well in the woods of Sweden. It is well named, for its short, obese, compact form. The top is even (colliculose in aurantiacum) and very minutely tomentose. The color is ochraceous, with a suggestion of orange. When cut the flesh *turns blue*, a feature entirely different from what takes place when Hydnum aurantiacum is cut. Hydnum compactum has heretofore been confused by me (cfr. Note 69) and by others with Hydnum caeruleum.

NOTE 85.—**Hydnum ferrugineum** and **Hydnum scobiculatum**, from Mrs. E. B. Blackford. The receipt of fresh specimens of these two species from Mrs. E. B. Blackford, Boston, and a study of the European figures that are cited clears up to my mind a subject concerning which I have never before had a clear idea. Fries was quite unfortunate in the naming of the latter plant at least, for it is curious that Hydnum scobiculatum is zonate, and only slightly scobiculate, and Hydnum ferrugineum is strongly scobiculate. This is borne out by the figures that Fries published and also those that he cites and also accords with my observations on Hydnum ferrugineum in the woods of Sweden. When young or in moist weather Hydnum ferrugineum exudes drops of colored water, a characteristic feature of the young plant, but when old or partially dried, there is no evidence of any exudation. Mrs. Blackford's specimens when received by me showed no sign of this. This has led Banker I believe to mistake old specimens of Hydnum ferrugineum for Hydnum scobiculatum.

Hydnum scobiculatum is much thinner and *zonate* and the "scobiculations" are more in the nature of abortive pileoli than the true "scobiculations" of Hydnum ferrugineum. It was called by Banker, Hydnum concrescens and has generally in American mycology been referred to Hydnum zonatum. It is a common species with us and I doubt if we have the true Hydnum zonatum of Europe. If we have it is rare. They are very close, but zonatum as I know it in Europe and as originally illustrated is a smaller, thinner, more infundibuliform species.

Hydnum ferrugineum and Hydnum scobiculatum have exactly the same color, dark fawn (No. 307-4, R. C.), and are the same internally. Both are mild to the taste and no pronouncedly fragrant odor is noticeable from either. Possibly they run into each other, but Mrs. Blackford's species seem very distinct.

NOTE 86.—**Pseudocolus Archeri.** About fifty years ago Berkeley published a figure in Flora of Tasmania (t. 184) as Lysurus pentactinus, and in his text he called it Lysurus Archeri. The figure was probably prepared first, but in the binding the text is bound first, hence by the sacred laws of priority the name Lysurus Archeri is "valid." If some binder should go to work and bind up the plates before the text, what an awful muddle it would make in the working of those unalterable laws! But as Berkeley called the same plant two different names in the same publication, even the wisdom of an Otto Kuntze must find it hard to make laws to settle such careless work.

The specimen has disappeared and it is evident that the reconstructed figure is more or less inaccurate, for surely no phalloid has the volva split into petal-like lobes as shown. Hence the identity of Lysurus Archeri (or Lysurus pentactinus, as Otto Kuntze may will) is as much a puzzle now as it was the day Berkeley published it. I reproduced Berkeley's figure in the Synopsis of the Known Phalloids as Anthurus Archeri (Fig. 48), as it was evident in any event the plant was not a Lysurus. I have just gotten a phalloid from W. G. Garner, Waikonini Orchard, Peel Forest, New Zealand, which when I soaked it out I thought must be the same as Berkeley's figure. The columns are united at the top, and at the bottom form a tube, hence the plant is a Pseudocolus in my view. There are six arms, two are still united at the top, the other four are broken but were sans doubt originally united. The color is red, and the gleba is borne on the inner side of each column, which is fluted on the back with the "umbilical scar," hence the plant must belong to the clathroid alliance. From Berkeley's figure that we reproduced, one would be justified in referring this plant here for it seems to be the same, but Berkeley's scanty text states "apicibus liberis," which does not apply at all.

We call the plant Pseudocolus Archeri. Should it develop in the next hundred years or so that it is or is not Berkeley's species, the name is as good as any, although Mr. Archer has little to do with it.

NOTE 87.—**Hydnum geogenium.** The receipt of a fresh specimen collected by George E. Morris, in Maine, settles in my mind a subject that has long bothered me. It is the same plant evidently as plants collected by Karsten and found at Upsala, and same surely as that of Fries' Icones.

The trouble has been that the only specimen from Fries I have seen (at Kew) appeared to me to have grown dimidiate and Fries placed the species in Hym. Europaei next to Hydnum septentrionales, a dimidiate species. The species is misplaced here. It belongs next to Hydnum aurantiacum, having the same texture and manner of growth.

Hydnum geogenium is a peculiar species in its color. The fresh plant received from Mr. Morris has the surface covered with a canary yellow tomentum, but the teeth and the dried plant have a greenish cast.

The spores are tubercular, globose, but appear of a paler color than others in this related section.

NOTE 88.—**Fomes gilvus,** sent by O. M. Oleson, from California, a subligneous (Fomes) form of Polyporus gilvus, like which it has the same context color and setae, but is evidently perennial. In our Eastern States Polyporus gilvus does not take this perennial form although it does in tropical countries. Such a form was named by Montagne, Polyporus inamaeus.

NOTE 89.—**Lenzites erubescens,** received from Rev. J. Rick Brazil. It is the only stipitate Lenzites known. I think this plant is very badly named. Rev. Rick advises me that it is "first pure yellow then reddish." The dried plant is dark fawn (No. 3, 307, R. C.) about the same as Lenzites saepiaria. There is nothing "erubescent" about it. Lèveillé called it Lenzites Guilleminiana, but fortunately this uncouth name does not have to be used. Only in recent years Hennings made the remarkable discovery that it was a "new species" of Lentinus which he called Lentinus Schomburgkii. As this is the only stipitate species of Lenzites known, Henning's reference to the genus Lentinus was

not so bad, although the context is more ligneous than the usual Lentinus. His claim that it was a "new species" is noteworthy only as indicating his unfamiliarity with the "old species."

NOTE 90.—**Ganodermus renidens,** from Rev. J. Rick, Brazil. I am glad to get a nice specimen of this plant from Rev. Rick, as it is the first specimen I have gotten. It is rare in Brazil. In my pamphlet on Stipitate Polyporoids I put this species in Amauroderma. It should go, I think, in section Ganodermus. The spores, which were described as subglobose, are mostly piriform and the hyaline membrane is quite distinct, forming an apiculate base. I saw none where the base had collapsed, as is usual in Ganodermus, but it is essentially the Ganodermus character. I make them about 10 x 12 and they are distinctly rough. Rev. Rick considers this also Polyporus formissimus of Spegazzini. I do not know this species, but the description appears to me to apply rather to Ganodermus Oerstedii.

NOTE 91.—**Stereum Burtianum,** from Prof. A. Yasuda, Japan. I have received two collections of this from Japan from Prof. Yasuda. It was named and figured a few years ago by Prof. Peck from the United States, but is very rare with us and the types at Albany are all that are known in this country. I have seen American specimens in two museums of Europe, however, labeled Stereum Harknesii, but it is only a manuscript name and think was never published.

NOTE 92.—**Stereum affine.** I have received from Dr. G. B. Zenker, Africa, a nice collection of this common tropical species. While it is common in the tropics, it is usually in museums misreferred to Stereum elegans. Dr. Zenker's collection is said to be a "type" of Thelephora Amigenatska, discovered by Hennings. Though there is no specimen in the cover at Berlin, I presume from the description this is correct. Dr. Hennings evidently named it for Dr. Zenker, however, as being "Thelephora cfr. aurantiaca Berk.," as specimens so named are found in various museums. As Berkeley never named any specimen "Thelephora aurantiaca," it would be quite difficult to make the comparison as requested.

NOTE 93.—**Cladoderris Floridanus.** Usually growing on top of log, and then cup shaped with short stipe. When on the side of log flabelliform or orbicular, reduced to a short stipe-like attachment at the base. Upper surface reddish brown, zoned, with appressed, compact, thin, tomentose pad near base. Hymenial surface reddish brown, densely minutely papillate, disposed in narrow ridges, but not with the branching, strong veins of other species of Cladoderris. Cystidia none. Spores compressed globose 2½ x 3, hyaline, smooth, with a small gutta near the end.

Growing on frondose wood and quite rare at Bayard, Florida.

As only recently I hunted up all the species of Cladoderris in the museums of Europe, and expressed the opinion that but one valid species had been named in the last sixty years, I was a little surprised to find one growing in Florida.

NOTE 94.—**An English tradition corrected.**—Cordyceps gracilis not Cordyceps entomorrhiza. For more than a hundred years the English mycologists have been recording as their most frequent species, Cordyceps entomorrhiza, which was originally named from England. I presume I have seen not less than fifty different collections in the London museums labeled "Cordyceps entomorrhiza Dickson," and in the entire lot not one that is correctly named. In fact, Cordyceps entomorrhiza seems to be a very rare species in Europe and I have never seen an English specimen. It was one of the first Cordyceps to be named from England by Dickson, in 1785, in his "Plantarum Cryptogamarum Brittanniae," and he gave a characteristic and unmistakable figure of it. It is a slender species with a globose head. The perithecia are protruding so that the head is rough, resembling to no small degree the fruit of a Ranunculus. About forty years later Greville illustrated and named Cordyceps gracilis. It is a more obese species than Cordyceps entomorrhiza and the perithecia are included so that it is perfectly smooth and even. There is little resemblance between it and Cordyceps entomorrhiza and the two species should never have been confused.

Cordyceps gracilis is common in Britain, and the error got started that gracilis was a synonym for entomorrhiza and has been copied and handed down through all the English mycological books. How the error originated it is hard at this late date to explain, but when Berkeley first met Cordyceps gracilis, a single specimen, he referred it to Dickson's figure, but he noted the difference and commented on it, but thought evidently it was probably due to variation of a single specimen. Afterwards when specimens became more common with him he forgot the difference apparently. Tulasne in his classical work on the genus took the name Cordyceps entomorrhiza from British source (specimen from Broome) and renamed Dickson's plant Cordyceps cinerea. It is hardly possible that Tulasne ever saw the original figure of Dickson, for Tulasne was too keen and critical an observer to mistake Dickson's figure, or to confuse two species that have so little resemblance to each other as these two have. No one has ever presumed even in England to go behind Tulasne, and thus it became the common custom to call Cordyceps gracilis by Dickson's name Cordyceps entomorrhiza. In this account I have only used the generic name Cordyceps, although the earlier writers called it Sphaeria and Tulasne called it Torrubia. These unimportant features have no bearing on the error.

Cordyceps entomorrhiza as far as I have learned has never been found in England since Dickson collected and figured it in 1785. Cordyceps gracilis is common and many collections have been made. By what strange chance Dickson happened to find this rare species and not the more common one is hard to explain, but it led to an error that has persisted now more than a hundred years. Whether it is feasible now to correct

this error and change the custom is a question, for when an untruth has been started it is hard to head it off. It seems hardly logical to continue calling a plant "Cordyceps entomorrhiza Dickson" which the most casual observer should note has little resemblance to Dickson's excellent figure.

NOTE 95.—**Stipitate Polyporus volvatus.** I have received drawings from Prof. S. Kawamura, Tokyo, Japan, illustrating the stipe found on Polyporus volvatus in Japan. Prof. Kawamura advises me that it is abundant, growing on dead trunks of Pinus densiflora, and the larger number of them have stipes, imbedded in the holes made by boring insects. It is very rarely in Japan that sessile specimens are found. In our country just the reverse is the case. Of Polyporus volvatus, every specimen in our museum is sessile, not one having any indication of a stem. The stipitate form was collected once in this country, as has been noted in my publications, but it is extremely rare.

NOTE 96.—**Tremella fusiformis.** I have made a statement somewhere that Tremella fusiformis does not occur in the United States. Recently I saw in Ravenel's herbarium, British Museum, a specimen that had been determined by Berkeley as "Tremella lutescens." It appears to me to be a fusiformis. As fusiformis is a frequent species in the tropics, it would not be surprising if it were found in our Southern States. The misnamed picture in Atkinson's work, however, has no resemblance to it, and its previous record in American mycology is without value.

In a conversation with Prof. Beardslee, Asheville, N. C., I judged from the description he gave me of a Tremella he found at Asheville, that he has collected Tremella fusiformis. No specimen was saved, however, and the subject is therefore not sure.

NOTE 97.—**Phalloids of Australia.** In a letter from Edmund Jarvis, Brisbane, he reports as being common two species, Mutinus pentagonus and Phallus multicolor. I was under the impression that Mutinus pentagonus was a rare species in Australia, but of course we do not know much about the actual occurrence of Australian species. The form of Phallus multicolor which Mr. Jarvis notes has "a bright orange red pileus, much convoluted, and a pale pink, slender veil, not much larger in diameter than the stipe." Many more observations will have to be made and much more data secured before one can form any idea of the value of the color variations shown by phalloids.

NOTE 98.—**Cordyceps insignis.** The curious fungi that proceed from the bodies of dead insects, grubs and worms were called by Cooke, not inaptly, "plant worms." They are usually club shaped, resembling in general form simple Clavarias. We have in the United States but one common species, viz., Clavaria militaris, that is frequently sent to me by my correspondents. The club is bright orange, and it is attached at the base to larva of some Lepidoptera.

The next most frequent species is Cordyceps insignis that passes in our tradition as Cordyceps herculea. Ellis, Peck, Morgan, Seaver, Kellerman, Hard, and others have so called it, assuming that it was Sphaeria herculea of Schweinitz's description. Had either of these done a little more investigating with a little less assumption, they would have found that "Sphaeria herculea" is not a Cordyceps at all. Cordyceps insignis always grows on a large, white grub. It is rather infrequent around Cincinnati, but has been found by most of the latter-day mycologists. Strange as it may seem, it was never picked up by any of Berkeley's correspondents, who found in our Southern States several much rarer species than this. Ravenel found a single specimen that he sent Cooke (after Berkeley had retired from the game), who, not being hampered with our local traditions in America, discovered it was a "new species" and named it as above. Patouillard, I believe, also claims to have discovered it was a "new species," but if so, it was subsequent to Cooke's discovery, and hence must fall a victim of that sacred law of priority. I have known for some years that our plant could not be Cordyceps herculea, having ascertained that this species is not a Cordyceps, but I did not know what to call it until my recent visit to Kew. I was waiting patiently for light from New York, knowing that they were making learned investigations on Pyrenomycetes, but when the article on Cordyceps appeared, I was disappointed to find there was nothing new, only the same old compilations, and the same old mistakes.

It was easier for me to decide that Sphaeria herculea in Schweinitz herbarium could not possibly be a Cordyceps, than to find out what it is. It is so evident at the first glance to note that it has an entire different appearance from a Cordyceps, that it seems strange that Ellis and Seaver, both of whom claim to be authorities on the genus Cordyceps, and have written systematic accounts of it, should have been tripped up, after having inspected it.

But I do not know that the joke is on me as much as it is on them. I examined it closely twice and could not decide what it was, and it was only by running down a clue from an unexpected source that I recognized the specimen. It is Cauloglossum transversarium, a Gastromycete, and a plant that I know well and have published in detail. The half specimen is glued down, and I considered it from an outside view only. That it is a Gastromycete was not even suggested to me. Had I seen the "insides" I think that I should have recognized it at first.

LETTER No. 48.

Determination of specimens sent by Henri Perrier de la Bathie, Madagascar.

By C. G. Lloyd.

(Cincinnati, November, 1913.)

We beg to acknowledge from Mr. Henri Perrier de la Bathie, Madagascar, another very liberal and large collection of specimens, mostly Polypores. Mr. Perrier de la Bathie is the most active correspondent that we have and sends us more specimens than any other collector. In this shipment, which consisted of five boxes, there are more specimens of Polyporus than Montagne ever received from all of his correspondents during his life and more species of Polyporus than are found in his herbarium to-day. The facilities for shipping are very much better, however, in these days than in the days of Montagne.

These specimens were shipped over a year ago, but by an unfortunate oversight they only came into our hands within the past few weeks. They were forwarded from our Paris address to our address in the United States, at which time we were in London, and when they were received at our home address they were put to one side for our return, but through oversight they were not brought to our attention promptly when we came home. We very much regret the delay, due to this mishap.

We have arranged the species systematically into sections. Not all of the specimens received were determined, for some of them we did not recognize, and those groups which we have not thoroughly worked we shall take with us on our next trip to Europe and study them up by comparison before publishing in regard to them. We feel there is no use in a man guessing on these subjects, and while we have studied thoroughly the specimens to be found in the various museums of Europe, we can not always carry the details, excepting where we have published. Where determinations are made from memory or from descriptions they are of very little value.

LENTINUS.

Lentinus Sajor Caju.

Very frequent in Africa and the East, but does not occur in the American tropics.

Lentinus stuppeus.

(=L. cirrosus Fr. probably.)

Lentinus velutinus.

LENZITES.

Lenzites repanda.

Frequent in tropics.

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AT LOS ANGELES

Compare my pamphlet, Synopsis of the Stipitate Polyporoids.

Section Polyporus-Ganodermus.

Polyporus lucidus.

Tropical form. The tropical forms of Polyporus lucidus are puzzling and do not have definite names. This form is what Murrill has named from the American tropics "Polyporus subincrustatum."

Polyporus fasciatus.

This has a dull surface marked with darker zones. The name was based on a misdetermination of Léveillé. It has no relation whatever to Fomes fasciatus of the American tropics. A question has recently been raised as to the authenticity of the "type" of Fomes fasciatus in the British Museum, and in our future work we shall adopt Berkeley's name, Fomes marmoratus, concerning which there is no doubt.

Polyporus mangiferae.

A very common plant in Africa.

Polyporus (cfr. mangiferae).

This, which is quite similar to mangiferae, has same colored context and pores and pore mouths, but surface is very dark, almost black.

Polyporus mastoporus.

A frequent species in Africa, recognized by its hard, minute, dark colored pores.

Section Polyporus Amaurodermus.

This section is most fascinating. The species differ widely, and have good characters, but they are mostly rare, and most species are known from single collections. Since my résumé was published, several marked species have come to hand. Mr. Henri Perrier de la Bathie sends in this collection two new forms.

Polyporus (Amaurodermus) rugosus.

This is about the only common species of the section in the East.

Fig. 565.
Polyporus rugosissimus. (Top of pileus.)

Polyporus (Amaurodermus) rugosissimus.

NOTE 99.—This is probably best held as a variety of Polyporus rugosus, with which it apparently agrees in every respect excepting the pileus, which in Polyporus rugosus is even, or slightly rugulose, and in this specimen is strongly scobiculate. As the specimen is sterile and no spores found, the matter is not sure, but otherwise it is so similar to rugosus that we have little doubt.

Fig. 566.
Polyporus Bathiei.

Fig. 567.
Polyporus conicus.

Polyporus (Amaurodermus) conicus.

NOTE 100.—Pileus conical in section with depressed center. Surface glabrous, brown. Pores shallow, medium large (200-300 mic.), dark. Stipe with a rooting base, 5-8 cm. long, ½-¾ cm. thick. Surface of stipe minutely velutinate, light brown color. Context pale, almost white. Spores globose, pale colored, smooth, 8-10 mic. in diameter. This species belongs to Section 5 of our pamphlet on Stipitate Polyporoids. It differs from all others in the large, shallow pores, and no other approaches it in the shape of the pileus.

Since the above is in type, I find that specimens have recently been received at Kew from Singapore. These specimens do not have shallow pores, and it is probable that they are better developed, or that the plant varies in this regard.

Section Petaloides.

Polyporus aratoides.

NOTE 101.—Published as Trametes. It is only a form of Polyporus maliensis as published in Stipitate Polyporoids, page 135.

Polyporus favoloides.

This, which belongs to the "grammocephalus" group, has large pores and in the museums is often found determined as being Polyporus grammocephalus. Mr. Henri Perrier de la Bathie sends also a form with smooth pileus, and also a doubtful form much paler color than usual.

Polystictus gallo-pavonis.

Quite common in the East.

Polyporus megaloporus.

This plant *with most peculiar setae* (cfr. Stip. Pol., p. 139) has reached me from several collectors. In the museums of Europe, however, I only found one specimen which is in Montagne's herbarium at Paris.

Polyporus megaloporus var. cinnamomeo-squamulosus (as named by Hennings, cfr. Stipitate Polyporoids, p. 138).

This differs from type form in being thinner and having smaller pores.

Polyporus antilopus.

(cfr. Stip. Pol., page 142.)

Petaloides Microporus.

This section is frequent in Africa and the East (cfr. Stipitate Polyporoids, page 142).

Polystictus luteus.

Polystictus carneo-nigra.

(=microloma, Lev.)

Polystictus affinis.

Polystictus flabelliformis.

Section Merismus.

Polyporus sulphureus.

This European species is cosmopolitan.

Section Pelloporus.

Polystictus multiformis.

NOTE 102.—These are the first specimens I have seen, excepting from the American tropics, where it is frequent. Polystictus luteo-nitidus is a larger plant, but I think the same species exactly. I can not believe that Polyporus Cummingii from Philippines should be here referred, as has been proposed.

Section Lentus.

Polyporus arcularius.

Cosmopolitan.

Lentus Microporus.

Polystictus xanthopus.

Most abundant in Africa.

Section Melanopus.

Polyporus dictyopus.

Polyporus Blanchetianus.

POLYPORUS APUS.

Context white.

Polyporus immaculatus.

NOTE 103.—This is a pure, white plant of the tropics and well named. The context is soft, friable, pure white, and "chalky." The pores are pure white, minute, with a silky luster as turned to the light. Spores globose, 4 mic., smooth, hyaline. This is not a common plant in the tropics, though widely distributed. Of course, it has many names. Berkeley named it as above and also Trametes pura. He labeled a specimen in Hooker's herbarium Polyporus immaculatus, and under this name sent it to Paris, and the name was used by Patouillard, although never published by Berkeley. In addition, Polyporus verecundus is probably the same thing. Hennings got it from New Guinea and immediately discovered it was a new species and called it the barbarous name Polyporus gogolensis. Murrill, from the American tropics, referred it to Polyporous leucomallus, which is wrong, we think, although the type is a little frustule, from which not much can be told. His two synonyms are both right. When he got the same plant from the Philippines, however, he discovered that it was a new species and called it Polyporus unguliformis.

White species are all difficult, but this plant is so characteristic that we think no one should confuse it. It seems to be confined to the tropics.

Section depallens.

Polyporus lignosus.

NOTE 104.—Very thin form. This form was called Polystictus honduriensis by Murrill. It is a question if Polyporus zonalis is truly distinct from it.

Section Dichrous.

Polyporus adustus.

The type form of Europe was not sent by Mr. Henri Perrier de la Bathie, but two related plants.

Section Glœoporus.

This section with gelatinous hymenium is held by many as a distinct genus. In temperate regions it is quite uniform, but in tropical countries it takes several color forms.

Polyporus dichrous.

NOTE 105.—This species has a gelatinous hymenium, hence is by some placed in a separate genus, Glœoporus. The type form with white flesh and purplish hymenium is a very common plant in the United States, but is rare in Europe. We have the type form also from Brazil, South Africa, and a similar, colored, but thinner plant from Japan. Mr. Henri Perrier de la Bathie does not send the type form.

In the tropics Polyporus dichrous has usually much paler colored hymenium and was named Polyporus conchoides by Montagne, and a form with almost white hymenium is called Polyporus candidus. The form from Henri Perrier de la Bathie, Madagascar (named below), has a burnt umber hymenium, with no trace of the purple of the type form.

Polyporus candidus.

viz. the white form of conchoides (see above).

Polyporus Madagascarensis.

NOTE 106.—Flesh ochraceous, thick, spongy, in some specimens ½ cm. thick. Hymenium umber brown. In all other respects it is same as Polyporus dichrous, of which it is only a variety.

Section with dark purple context.

Polyporus vinosus.

Polyporus durus.

Section with brown context.

Polyporus gilvus.

Polyporus minuto fruticum.

NOTE 107.—Pileus very small, orbicular, ½ to 1 cm. in diameter, ferruginous brown. Context soft, spongy, concolorous. Pores darker, minute, the mouths round or elongated irregular. Spores hyaline, globose, 4-4½ mic., smooth.

This little species is attached to twigs in the same manner as Polyporus fruticum. It has the same color, and might be held as a small form, but we think it is distinct. The spores are larger and the discrepancy in size of the plants is too marked to be classed together.

Section isabelline context.

Polyporus bicolor.

Polyporus pruinatus.

Two collections, one thinner than the other.

Polyporus anebus.

(cfr. Letter No. 47.) Very close to pruinatus, but with smooth pileus.

Section colored context and spores.

Polyporus hispidus?

The pores are not developed. We find no spores, and the surface is not so "hispid" as it should be.

POLYSTICTUS.

Compare also species in Stipitate Sections.

Polystictus substigius (a better Polyporus).

Polystictus occidentalis.

Polystictus caperatus.

Polystictus luteo-olivaceus.

Polystictus flavus.

Section Funales.

Polystictus leoninus.

Section Tabacinus.

Polystictus tabacinus.

NOTE 108.—As we get this plant from various localities, we are becoming convinced that it is not practical to distinguish Polystictus tabacinus from Polystictus iodinus. We have exactly same plant in our Southern States.

FOMES.

Context color white.

Fomes hornodermus.

Context color rose or latericeous.

Fomes perlevis.

(cfr. Letter No. 39.) Mr. Henri Perrier de la Bathie sends this in abundance. How this most peculiar species escaped being named until such a late date is a mystery.

Fomes nontostus (Bresadola's determination as Fomes semitostus).

I have compared these with the type at Kew and find it has same pores and context color and texture, but the surface is different. In the type it is smooth, reddish brown, and the name "half scorched" is not bad. In these specimens from Madagascar there is no indication of this. The pale, sulcate surface is better called "nontostus." The type of Fomes semitostus has practically no context. It is well developed in these specimens, soft, punky, pinkish cinnamon.

Context pale, pores darker.

Fomes sculpturatus.

Since this plant has been named, we conclude that it is practically the same species as Fomes mirabilis from Malay. The spores are *very different*. Globose, brown, 7-8 mic. smooth, punctate in Fomes mirabilis; large, 14 x 20 mic. ovate, brown in Fomes sculpturatus. We think perhaps that Fomes sculpturatus is the conidial spored form of the Malay plant. It is curious, however, that in an ample sending from Henri Perrier de la Bathie all had these same large spores.

Context color brown, ferruginous or fulvous.

Fomes senex.

A frequent species in the East with velutinate hymenium, pale spores, and setae on the pores. We have heretofore called this plant Fomes Haskarlii, and Bresadola refers it to Fomes Korthalsii both names of Léveillé, and both doubtful, owing to confusion that exists as to the types. We are convinced that it is Fomes senex in the *original* meaning of Montagne (Juan Fernandez specimens, not the Cuban reference of Montagne), and, owing to the doubt as to both of Léveillé's names, we shall adopt the name Montagne gave the plant.

Fomes senex, the type form, is a species of wide distribution. There is an abundance of it at Leiden, which was referred by the old Dutch mycologists to Fomes ferruginosus. We have an ample collection from Dr. J. C. Koningsberger, Java. It has a rugulose surface, very little context, and many layers of pores.

Fomes velutinosus.

NOTE 110.—We believe this is entitled to a name and that it is different from Fomes senex, to which we have heretofore referred it. It has the same context, color, and setae, but differs in its surface, its texture, and its pore mouths. The surface is much smoother, and often has a banded effect, such as has Polyporus licnoides (the type). The context is softer and well developed. In Fomes senex there is very little context, and it is harder and difficult to cut. The most marked difference is in the pore mouths, which in Fomes velutinosus are more strongly velutinate and of a *deeper color*. The velutinate pore mouths are caused by dense, colored hyphae, projecting 20 to 30 mic.

Fomes velutinosus has reached us from S. Hutchings, Bengal; K. Nakanishiki, Kagegoti Island, Japan, and this collection from Henri Perrier de la Bathie, Madagascar. All of these collections were referred by us to Fomes senex when received, and might be held as a variety. None of them, however, have more than one pore layer, and we are not sure even that they are Fomes, though we presume so from the subligneous context.

Fomes pseudosenex.

This collection seems exactly the same as specimen from Cuba which Montagne confused with the plant he had named Fomes senex from Juan Fernandez. We were somewhat in doubt about previous specimens we received from Mr. Henri Perrier de la Bathie.

Fomes pullus.

(cfr. Letter 47.)

Fomes pachyphloeus.

This specimen has a *thick*, black, hard crust, and no context, features in which it differs from pachyphloeus as we have heretofore known it. However, as it has the same context color and the same *very peculiar* structure we can not doubt its reference.

Fomes pectinatus.

Context dark purple.

Fomes melanoporus.

This is the only Fomes with dark, purple brown context. Polyporus vinosus and Polyporus durus have context of similar color.

FOMES-GANODERMUS.

The tropical forms of the "Applanatus group" are very variable and puzzling. We have not as yet definite ideas as to the forms entitled to names.

Fomes applanatus.

The type form of Europe.

Fomes australis.

As we are calling this form ad interim until the "applanatus" group is revised. In the end this very distinct form with *yellow pore* mouths will have a distinct name probably. We have labeled it Fomes oroflavus.

Fomes subtornatus.

A species with smaller, harder, darker pores.

TRAMETES.

Trametes hystrix.

Frequent in Africa, but only known from Africa, although usually confused in the museums with Trametes hydnoides of the American tropics.

Trametes versatilis.

Widely spread in the tropics.

Trametes Persoonii.

Common in the tropics.

Trametes roseola.

A beautiful species with rose-colored context.

Trametes avellanea.

This species was recently named from Madagascar, and distributed in the exsiccatæ (anonymously) from Wien (No. 1910). It is quite close to Trametes roseola and also Fomes nontostus.

HEXAGONA.

Hexagona tenuis.

Hexagona umbrinella.

Hexagona rigida.

DAEDALEA.

Daedalea gibbosa.

A plant of Europe.

Daedalea quercina.

Seems same to me as the European species. There is a slight difference, but we hardly know how to explain it.

HYDNUM.

Hydnum rawakense.

NOTE 111.—These specimens differ from the Brazilian specimens distributed by Rev. Rick in having spines more slender, three times as long, and of a deeper red color. As the species came originally from the East, it is probable that the Madagascar specimens are nearer the type than the Brazilian.

Fig. 568.
Hydnum petaloides.

Fig. 569.
Stereum unguliformis.

Hydnum petaloides.

NOTE 112.—Pileus orbicular, 1-2 cm. in diameter, thin, smooth, yellowish. Stipe slender, 3-4 cm. long, with yellow tomentum. Spines slender, yellow. Spores small, 3-3½ mic., globose, hyaline, smooth.

We know no similar species excepting Hydnum luteolum, a rare and little known species of France. The European species has a spathulate pileus tapering to the base. It is described in Fries' Hym., p. 607, and based on a vague, ancient reference of Villars. The only specimens in the museums are at Paris, labeled in error, Hydnum geogenium. Hydnum petaloides is quite different from Hydnum luteolum, having an orbicular pileus and a slender stem.

Hydnum pulcherrimum.

NOTE 113.—What strange facts do develop in the distribution of fungi! Here we have a species *common in the United States*, but we are satisfied there is not a specimen of it from any other country in any museum of Europe. Mr. Henri Perrier de la Bathie sends a specimen from *Madagascar*, absolutely the same as our American plant.

We rather suspect, however, that Hydnum corrugatum, a very rare plant of Europe, is the same species. Hydnum pulcherrimum does not belong in the section Merismus, where Fries first placed Hydnum corrugatum, but to Apus, as it is found in Hymen. Europae. Fries' plant, of which small specimens are found at Kew and Upsala, probably grew in an abnormal position. (Cfr. Sverig. Svamp. t. 16.)

STEREUM.

Stereum unguliformis.

NOTE 114.—Pileus flat, linear-cuneate, 2 cm. long, 2-5 mm. wide, tapering to the base, the apex of the broader specimens cut into 4-5 segments. Color pale, white when fresh no doubt. Hymenium surface even white. Spores 2½-3 x 6-7 straight, hyaline, smooth. Cystidia none.

This little species belongs to Section 9 of the Stipitate Stereums. Its nearest affinity is Stereum cyphelloides.

Stereum australe.

NOTE 115.—Pileus sessile, pubescent with a brown or grayish tomentum, zonate with glabrous, brown, bay zones. Hymenium cinereous when dry, reddish brown when wet. Basidia forming a compact layer in which are imbedded dark-colored bodies, "lactiferous ducts." Cystidia none. Spores 4 x 6, hyaline, smooth, with granular contents.

This is a tropical species of Stereum, apparently frequent, but which we have not found named in the museums of Europe. It has been confused with the common Stereum lobatum of the tropics, or Stereum fasciatum, which is the same thing. It was so confused in our Letter No. 46 as "Stereum lobatum with cinereous hymenium." The upper surface is exactly the same as Stereum fasciatum or lobatum, and the texture and size are the same, but it differs in having lactiferous ducts, and "bleeding" when the hymenium of a fresh specimen is bruised. It is closely related to Stereum spadiceum and Stereum sanguinolentum.

Recently we found this same plant, that reaches us from Madagascar, in Southern United States (Florida). It does not occur with us except in the extreme South. We have no name for it in American mycology, though we think it has been confused with Stereum fasciatum, *but not by Schweinitz.*

Mr. Henri Perrier de la Bathie sends us three collections.

Stereum affine.

All of this collection with lateral stipes.

Stereum lobatum.

A most common plant in the tropics.

Stereum surinamense.

Part of this collection is funnel shape, part petaloid, which would indicate that it will be difficult to maintain this as a species distinct from affinis, as we thought when we wrote our pamphlet.

Stereum Mellisii.

A fine collection of a characteristic species. The hymenium is velutinate with cystidia, hence it is a "Lloydella" for those who use this name. Léveillé and others confused it with Stereum affine.

THELEPHORA.

Thelephora radicans.

The genus Thelephora (true) is quite rare in the tropics, and as shown by this collection, specimens vary much as to form. Thelephora acanthacea is an old name for this species, and we think Ceylon specimens referred to Thelephora dentosa by Berkeley, and inaccurately cited by Saccardo as the type, are probably the same. The *type* of Thelephora dentosa from *Cuba* is different.

SEBACINA.

"Thelephora dendroidea."

NOTE 116.—This curious growth that always grows on the pore surface of Fomes applanatus (or related species) is a mysterious fungus, the genus unknown. From its habits of growth it is probably a Sebacina. It is usually a rare plant. It has been found in Venezuela, from two or three localities in the United States, Ceylon, and now Mr. Henri Perrier de la Bathie sends it from Madagascar.

CLADODERRIS.

Cladoderris elegans.

DALDINIA.

Daldinia concentrica.

Mr. Henri Perrier de la Bathie sends also a Pyrenomycete with hyaline spores, genus unknown to us, but we have as yet worked but little with this class of plants.

MYRIOSTOMA.

Myriostoma coliformis.

This "puff-ball" is never common, but is widely spread over the world.

THE SPECIES OF THE GENUS ANTHROPOMORPHUS SEGER.

By N. J. McGinty.

The genus Anthropomorphus was described and illustrated by the learned D. George Seger in 1688. I reproduce a copy of his illustration herewith which, although slightly inaccurately drawn, will readily be recognized as the first representation of this genus. In the year 1729 Micheli recognized a number of species which, as he did not know of Seger's work, he placed in a new genus "Geaster." I am justified therefore in bringing together the following list which, according to the descriptions, belong to the genus Anthropomorphus.

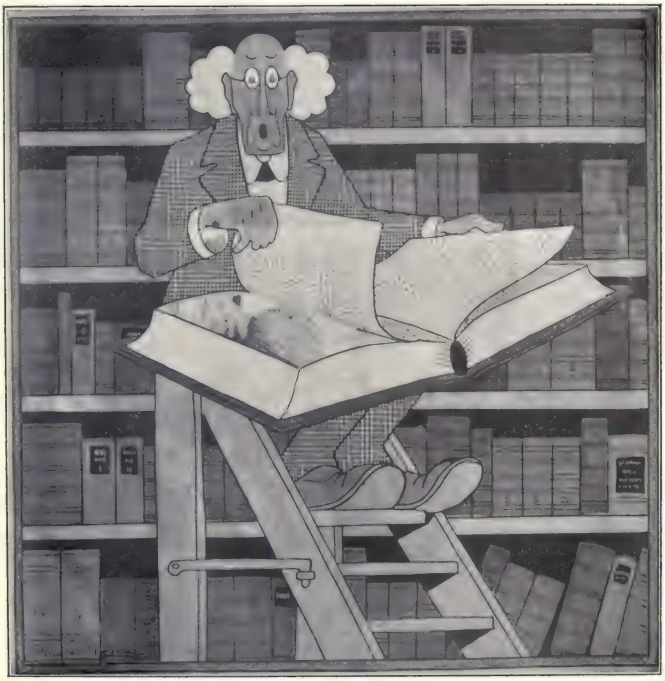
Anthropomorphus Berkeleyi (Massee) McGinty.
Anthropomorphus Bryantii (Berk.) McGinty.
Anthropomorphus coronatus (Schaeffer) McGinty.
Anthropomorphus Drummondii (Berk.) McGinty.
Anthropomorphus floriformis (Vitt.) McGinty.
Anthropomorphus fornicatus (Huds.) McGinty.
Anthropomorphus fimbriatus (Fries) McGinty.
Anthropomorphus limbatus (Fries) McGinty.
Anthropomorphus mammosus (Chev.) McGinty.
Anthropomorphus minimus (Schw.) McGinty.
Anthropomorphus mirabilis (Mont.) McGinty.
Anthropomorphus rufescens (Fries) McGinty.

—Bulletin of the Poseyville Fungus.

Forage Club, January, 1908.

AN HISTORICAL PICTURE.

The followers of the late lamented Otto Kuntze will be pleased with the illustration that we are enabled to reproduce from our esteemed contemporary "Le Pôle Môle," illustrating an important event in history of this school of nomenclature. Perhaps the most momentous incident in the literature of the school was the discovery that Professor McGinty made of the new genus "Anthropomorphus," by which he was enabled to change all the names of the Geasters and added his name to them all. We had the great honor to have been entrusted by Professor McGinty with the original publication of his article, and in view of its classical value we publish it again on the previous page.



Professor McGinty discovering the genus Anthropomorphus.

The picture is a copy of an oil painting that hangs in the rooms of the Poseyville Fungus Forage Club, and shows the Professor in the act of making his momentous discovery.

LETTER No. 49.

Report of specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address, and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
95 Cole Park Road,
Twickenham, England.

Cincinnati, Ohio, January, 1914.

AIKEN, W. H., Ohio:

Fomes pomaceus. *Growing on maple.*

ALLEN, MISS LIZZIE C., Massachusetts:

Poria Vaillantii. Characteristic with its cord-like mycelium strands and the thick subiculum, loosely adhering like a white membrane.

Geoglossum irregulare.—Polystictus circinatus.—Polyporus adustus.—Lenzites betulinus.—Stereum hirsutum.—Polyporus griseus.—Daedalea confragosa.—Lycogala Epidendrum.—Enteridium Roseanum.—Polystictus Montagnei. A *rare* plant.—Polyporus albellus.—Fomes connatus.—Trametes suaveolens.

AMES, FRANK H., New York:

Phlebia radiata.—Phlebia radiata. This form is called Phlebia merismoides Fr., but there is but *one species of Phlebia* of this color.—Polyporus adustus.—Stereum spadiceum.—Polyporus brumalis.—Merulius tremellosus.—Irpex cinnamomeus.—Stereum complicatum.—Polyporus caesius. Smooth specimens.—Phallus duplicatus.—Bulgaria inquinans.—Hydnum ochraceum.—Tremellodendron pallida.—Xylaria corniformis.—Stereum complicatum.—Polyporus lacteus.—Thelephora albido-brunnea.—Polyporus caesius. Pubescent specimen.—Stereum ochraceo-flavum.—Lenzites betulina (abnormal).—Daedalea ochracea.—Polyporus frondosus.—Irpex lacteus.—Polyporus (Ganodermus) sessile (or Oerstedii Fr. as I call it).—Polyporus albellus.—Irpex lacteus.—Polyporus tephroleucus.—Trametes malicola.—

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

Stereum hirsutum. This is as near the European plant as we seem to have in America. It is a rare species with us.—Stereum complicatum (?, too large).—Polyporus radiatus.—Stereum (Hym.) tabacinum.—Crucibulum vulgare.—Porothelium fimbriatum.—Lenzites trabea.—Hydnum pulcherrimum. —Stereum purpureum.—Stereum Micheneri??—Polystictus variiformis (as Trametes). (See Note 117).—Polyporus Spraguei.

BALLOU, W. H., New York:

Polystictus hirsutus.—Polyporus, small pored form of Polyporus rufescens (See Note 118).—Polyporus alutaceus (See Note 119).—Polyporus cuticularis.—Polystictus biformis.—Irpex pachydon.—Fomes connatus.—Hydnum ochraceum.

BARTHOLOMEW, PROF. E., Kansas:

From Washington.—Polyporus rufescens.—Polyporus aurantiacus.

From Montana.—Lenzites confragosa.—Stereum purpureum.—Polyporus igniarius.—Fomes Ellisianus (See Note 120).

From Kansas.—Polyporus squamosus.—Lenzites trabea.

From New York.—Fomes conchatus.

From Louisiana.—Hydnum laeticolor.—Polystictus focicola.—Stereum versiforme.—Merulius Corium.—Irpex (Sp. ?).—Trametes sepium.—Peniophora gigantea.

From Louisiana.—Hydnum ochraceum.—Polyporus palustris.—Polyporus Oerstedii.—Polyporus sessile.—Irpex (Sp.?).

From Texas.—Polyporus cuticularis.—Polystictus biformis.—Stereum complicatum.—Stereum spadiceum.—Polystictus Friesii.—Lenzites zonata. —Irpex pachydon.

From Oklahoma.—Polystictus pinsitus.—Merulius tremellosus.—Merulius incarnatus.—Polyporus obtusus.—Polystictus biformis.—Tremella mesenterica.—Hydnum pulcherrimum.—Lenzites trabea.

BEARDSLEE, H. C., North Carolina:

A fine lot of specimens, which are quite an acquisition to my collection. I am particularly glad to get the fine set of Hydnums, as I shall try to get a clear knowledge of the Hydnum species in the next year or so.

Dacryomyces aurantia.—Tremella clavarioides. A fine specimen.—Tremella vesicaria.—Tremella foliacea.—Xylaria persicaria (See Note 121). —Polyporus arculariformis. For me, a depauperate form of Polyporus arcularius.—Polystictus dependens. A rare species.—Thelephora cuticularis (See Note 122).—Favolus europaeus.—Thelephora albido brunnea.—Thelephora multipartita.—Naematelia nucleata.—Polyporus albellus.

Prof. Beardslee sends some interesting Hydnums as follows.—Hydnum amicum.—Hydnum zonatum.—Hydnum laevigatus??—Hydnum subsquamosum.—Hydnum fuligineo-violaceum (Note 123).—Hydnum suaveolens.—Hydnum caeruleum.—Hydnum putidum (See Note 124).

BLACKFORD, MRS. E. B., Massachusetts:

Fomes fomentarius.—Hydnum velutinum (=H. spongiosipes).—Polyporus dichrous.

Cordyceps capitata.

BONANSEA, DR. S. J., Mexico:

Trametes hydnoides.—Schizophyllum commune.—Calvatia lilacina.—Lenzites repanda.—Lentinus lepideus.—Lenzites saepiaria.—Favolus flaccidus. Doubtful, if distinct, from Favolus brasiliensis.

Polystictus villosus. Cfr. Myc. Notes, Pol. Series, p. 47. This plant has *very dark* pores, and it is doubtful if it is the same as Polystictus pinsitus described with white pores. — Hirneola polytricha (with purplish hymenium = purpurascens Jungh. as Exidia).—Trametes hydnoides.—Lenzites repanda, with a reddish stain.—Polyporus arcularius.—Polystictus sulcifer. I judge from my photograph of the type (from Brazil), but it should be compared.

BROWN, CHAS. N., Wisconsin:

Polyporus fumosus.

Irpex lacteus.—Polystictus hirsutus.—Stereum fasciatum.—Stereum spadiceum.—Polystictus versicolor.—Polyporus adustus.—Polystictus pergamenus.—Fomes fraxinophilus.

Daedalea unicolor.—Fomes applanatus.—Merulius tremellosus.—Polyporus resinosus.

Polyporus albellus? ? This is the white form which has been called Polyporus lacteus.

BURNHAM, STEWART H., New York:

Fomes igniarius.—Stereum bicolor.—Stereum complicatum.—Aleurodiscus Oakesii.

BUTIGNOT, DR., Switzerland:

Hydnum aurantiacum.

Thelephora palmata, form with slender branches.

CARL, EMMA J., Ohio:

Polystictus conchifer.

CARTER, L. W., South Dakota:

Bovista plumbea. Young specimens with the exoperidium still adhering, but so large that I was at first dubious about them.

CAVE, G. H., India:

A liberal sending. The species are many of them of the African type.

Daldinia concentrica.—Lenzites ochroleuca. Two collections showing every possible diversity as to the hymenium (cfr. Hexagona pamphlet, page 31).—Lentinus subnudus.—Polyporus scruposus.

Fomes fomentarius. From the specimen alone one could not say that these were not collected on the Beech trees around Paris. Exactly the same.

Polystictus xanthopus. Mr. Cave sends four abundant collections of this plant, varying from the light (typical) color to the dark color called Polystictus florideus by Berkeley. It is quite a common species in Africa. —Stereum lobatum. Two collections.—Trametes obstinatus.—Polystictus

Gaudichaudii (Cfr. Stipitate Polyporoids, fig. 435), Polystictus elongatus (See Note 125).—Polystictus. I do not know whether this has a special name or not. It is only a form of Polystictus hirsutus, with softer, silky, hairs.—Polyporus secernibilis (Cfr. Letter 45, page 4).—Polyporus sulphureus?—Stereum princeps (See Note 126).

Polyporus montanus. This is the European analogue of Polyporus Berkeleyi, and a small edition of it. It has same habits and same peculiar spores (Cfr. Stipitate Polyporoids, page 148). Polyporus Berkeleyi is a large and frequent species in the United States. It grows usually at base of oak trees, and, I am told, is a root rot of the tree. What is practically the same plant occurs in Europe (rarely), and has been called Polyporus montanus. Mr. Cave's specimens have the general characters of the European form. It (or a near species) is known at Kew from a single specimen from New Zealand (called Polyporus Zelandicus), and from one from Japan (called Polyporus Dickinsii).—Polyporus varius.—Hexagona umbrinella.—Trametes Carteri (See Note 127).

DAVIS, SIMON, Massachusetts:

Polystictus conchifer.—Fomes pinicola.—Polystictus hirsutulus.—Bovista plumbea.

Polyporus Spraguei—Polyporus albellus.

DEARNESS, J., Ontario:

Seven specimens of Clavarias and resupinate Thelephoraceae, families which I do not know.

DUPAIN, VICTOR, France:

Stereum pallidum. Very glad to get the specimen, for while I have seen it in several museums of Europe, these are the first I have ever received.—Stereum (Aleurodiscus) disciforme.

DUTHIE, MISS A., South Africa:

Lenzites betulina.—Polystictus sanguineus.—Tylostoma poculatum.—"Isaria" flabelliformis.—Polyporus gilvus (scrupose).—Phellorina Delastrei.—Cyathus vernicosus.

FARIS, BEN H., Ohio:

Phallus imperialis. Of interest as the first collection of this species made around Cincinnati.

FRIES, THORE, C. E., from Swedish Lapland:

Bovista nigrescens. Bronzed variety.

Calvatia borealis, n. s., as named by Mr. Fries. It is a very distinct "new species" and well named. Very common in the mountains of Lapland, Mr. Fries states. I believe it only occurs in these extreme northern regions.—Calvatia saccata.—Lycoperdon umbrinum.

FROGGAT, WALTER W., Australia:

Polyporus abruptus (see Note 128).—Polystictus sanguineus.—Polyporus lignosus.—Daldinia concentrica.—Trametes obstinatus.—Polystictus

occidentalis.—Polystictus gallo-pavonius.—Trametes lactinea.—Daedalea repanda. This plant is normally pure white. Some of these specimens are stained brownish, but surely the same species.—Stereum involutum.

Polystictus pinsitus. This is a very common species in the American tropics, and I had an impression that there was some difference in the Eastern plant. But I can not note any difference between these specimens and collections from Brazil.—"Xylaria" cinnabarina (see Note 129).—Pleurotus sapidus.—Fomes (see Note 130).—Fomes applanatus.—Trametes strigata.—Polyporus mangiferae.

GRELET, REV. L. J., France:

Helvella monachella.—Acetabula Dupainii.—Pustularia ochracea.—Fomes pomaceus.—Lenzites tricolor.—Thelephora intybacea. I am not sure about this species.—Lycoperdon echinatum.

GUNDERSON, MRS. MINNIE, Massachusetts:

Fomes connatus.—Polystictus hirsutulus.—Irpex lacteus.—Irpex tulipifera.—Phlebia radiata.—Poria sinuosa.—Stereum (Hymenochaete) tabacinum.—Polystictus versicolor.—Stereum complicatum.—Stereum ochraceoflavum.—Polystictus hirsutus.—Hymenochaete corrugata.

HASSLER, DR. F. A., California:

Battarea phalloides. The robust form called Battarea Stevenii (cfr. Tylostomaea, p. 6). This is a rather unusual species, both in America and Europe, and with us is only known from the Pacific Coast.

HIBBARD, MISS A., Masachusetts:

Polystictus admirabilis.—Polystictus hirsutus. Slightly different from the usual form.—Daedalea unicolor.—Polystictus versicolor.—Hyndum adustum.—Dacrynomyces deliquescens.

Stereum fasciatum.—Stereum complicatum.—Exidia recisa.—Polyporus radiatus.—Polyporus amorphus.—Stereum spadiceum.—Tremella sarcoides.

Fistulina pallida. Very young specimen, the pores not developed. It is quite a *rare* species.—Guepinia spathulata.—Lenzites saepiaria.—Trametes sepium.—Irpex tulipifera.—Irpex lacteus.—Hydnum ochraceum.—Polyporus fumosus.—Merulius tremellosus.—Polyporus Spraguei.

HOLDEN, WM., North Carolina:

Polyporus adustus.—Polyporus gilvus.—Polyporus dichrous.—Polyporus reniformis.—Polystictus fociola.—Polystictus versicolor.—Hirneola auricula-Judae.—Hydnum imbricatum.—Hydnum adustum.—Polyporus cristatus, a regular mesopodial specimen.—Schizophyllum vulgare.—Isaria farinosa.—Stereum fasciatum.—Polystictus sanguinarius.—Polyporus Spraguei.—Fomes pomaceum.—Merulius tremellosus.—Lenzites trabea.—Thelephora cuticularis (see Note 131).—Thelephora albido-brunnea.

Daldinia concentrica.—Polyporus sulphureus.—Polyporus picipes.—Polystictus circinatus.—Stereum spadiceum.

HUMPHREY, C. J., Wisconsin:

Polyporus radiatus.—Daedalea unicolor.—Polystictus zonatus, as near as we have it in this country.—Polystictus Grayei.—Trametes serialis, resupinate. It is also Poria calosa, Fr.—Polyporus nodulosus.—Polyporus betulinus.

JANSE, A. J. T., Africa:

Lenzites repanda.—Daldinia concentrica.—Polystictus occidentalis. The tomentum is more brown than usual.—Stereum hirsutum.—Polystictus sanguineus.—Schizophyllum commune.—Polyporus sulphureus.—Polyporus reniformis. Seems same as our American plant, viz., the annual form of Fomes applanatus.—Fomes leucophaeus.—Fomes senex.

JONES, KATE A., New Hampshire:

Daedalea unicolor.—Polystictus pergamenus.—Lenzites saepiaria.—Favolus europaeus.—Daedalea confragosa.—Polystictus versicolor.—Polyporus albellus.—Fomes leucophaeus. Unusual form, with a distinct stipe.

LANGTON, THOS., Canada:

Favolus europaeus.—Polyporus albellus.—Polyporus mollis.

Polyporus spumeus (see Note 132).

LEEUWEN, DR. VAN, Java:

Polystictus sanguineus.—Polystictus Persoonii.—Polystictus caperatus.—Lenzites repanda.—Polystictus Persoonii, of an *unusual color*.—Polystictus xanthopus.—Polyporus (Ganodermus) mastoporus.—Hexagona tenuis form bivalvis.—Polyporus (Ganodermus) lucidus. Tropical form.—Fomes (Ganodermus) applanatus. Tropical form, with yellow pore mouths.—Polyporus rubidus.—Trametes cingulatum.—Trametes aspera.

LONG, W. H., Washington, D. C.:

Specimens all collected in the Southern States.

Fomes juniperinus. On Juniper Utahensis in Arizona. The first specimen of this rare species our museum has received (cfr. Myc. Notes, page 522). Mr. Long tells me he now concedes that Fomes juniperinus and "Fomes Earlei, n. s. Murrill" are one and the same thing.—Fomes robustus.—Polyporus croceus. On red oak in Arkansas.—Fomes geotropus (see Note 133).

From Southern and Southwest United States:

Polyporus fissilis (see Note 134).—Polyporus cuticularis.—Polyporus corruscans.—Polyporus hispidus?—Fomes Everhartii.—Fomes texanus (see Note 135).—Ganodermus sessile.—Ganodermus polychromum.—Ganodermus (cfr. reniformis).—Ganodermus Sequoiae.—Poria medulla-panis.—Daedalea juniperinus.

LORDLEY, E. D., Nova Scotia:

Hydnum Caput Ursi, reported as being fragrant.—Bovista pila.

LOWE, MRS. F. E., Massachusetts:

Lenzites betulina.—Polystictus hirsutus.—Merulius tremellosus.—Stereum hirsutum.—Stereum spadiceum.

Stereum complicatum.—Polystictus hirsutulus.—Stereum sericeum.—Daedalea confragosa.—Schizophyllum commune.—Daedalea quercina.

MACBRIDE, PROF. T. H., Iowa. (Collected in Northwest):

Geaster limbatus.—Geaster hygrometricus (var. giganteus, Geastrae, p. 10).—Polysaccum pisocarpium (form tending toward crassipes).—Lycoperdon gemmatum (form excipuliforme).—Lycoperdon gemmatum.—Lycoperdon pratense.—Lycoperdon umbrinum.—Lycoperdon piriforme.—Lycoperdon piriforme (dark form).—Bovista pila (young).—Lycoperdon elegans.—Lycoperdon atropurpureum.—Lycoperdon cupricum.—Rhizopogon rubescens.

MACOUN, PROF. J., British Columbia:

Polyporus caesius.—Trametes cervinus.—Hydnum coralloides.—Gyrocephalus rufus. Rarely received.—Fomes annosus.—Tremellodon gelatinosum. Stipitate species.—Trametes Pini.—Fomes (Ganodermus) applanatus.—Polystictus abietinus.—Thelephora radiata.—Xylaria hypoxylon.—Polyporus hirtus. Finest specimen I ever saw of this rare species.—Polyporus sulphureus.—Typhula filiformis.—Geaster saccatus.—Hymenochaete cinnamomea.—Trametes serialis??—Helvella infula.—Solenia anomala.—Morchella esculenta.—Morchella conica.—Stereum complicatum.—Dacryomyces aurantia.—Trametes abietinus.—Helvella sulcata.—Verpa bohemica.—Lycoperdon pratense.—Lycoperdon gemmatum, form.—Lycoperdon unnamed.—Lycoperdon cepaeforme.

MAIRE, R., France:

Stereum insignitum.—Polyporus cuticularis.—Polyporus croceus.—Hydnum ochraceum.—Polyporus Schweinitzii.—Corticium salicinum.—Polyporus albellus.—Several Porias unknown to me.

MORRIS, GEO. E., Massachusetts:

A nice collection of specimens, many of them from Maine.

Trametes suaveolens.—Tremella lutescens.—Polystictus perennis.—Polystictus conchifer.—Polyporus borealis, variety spathulatus.—Tremella foliacea.—Dacryomyces aurantia.—Hydnum caeruleum.—Hydnum mirabile? (see Note 136.).—Tremellodendron pallida.—Thelephora palmata.—Trametes abietinus.—Lenzites betulina.—Daldinia concentrica.—Polyporus adustus.—Daedalea ochraceus (see Note 137).—Hydnum suaveolens (see Note 138).—Hydnum velutinum.—Hydnum rufescens.—Hydnum cyathiforme.—Hydnum carnosum?—Hydnum nigrum.—Hydnum aurantiacum.—Fomes pinicola.

NAVAS, REV. LONGINOS, Spain:

Polyporus gilvus. This is the first specimen I have ever gotten, and the second specimen I have ever seen from Europe (cfr: Letter 38, Note 22).—Polyporus squamosus. Young, and with a most curious, bulbose stem.—Trametes hispida.

NEAD, J. H., New York:

Polystictus velutinus.—Polyporus lucidus.

NOBLE, MRS. M. A., Florida:

Lenzites saepiaria.—Polystictus sanguinarius.—Irpex lacticolor. A rare plant.—Daedalea (sp. ?).

OLESON, O. M., Iowa:

Stereum spadiceum.—Poria rhodella.—Lentodium squamulosum.—Stereum complicatum.—Pleurotus striatulus.—Polyporus fumosus.

Irpex (or Poria) Tulipifera.—Daedalea unicolor.—Stereum sericeum.—Stereum (Hymenochaete) tabacinum.—Hydnum pulcherrimum.—Merulius tremellosus.—Fomes Everhartii.—Irpex cinnamomeus.—Polyporus dichrous.—Stereum Leveilleanum, resupinate (cfr. Letter 46).—Polyporus elegans.—Fomes leucophaeus.—Favolus europaeus.—Exidiopsis alba (cfr. Note 48, Letter 44).—Polyporus Spraguei.—Daedalea confragosa.—Thelephora palmata?—Tylostoma rufum (cfr. Monograph, p. 18).—Xylaria polymorpha.—Poria ambigua.—Polystictus cinnabarinus.—Polyporus albellus.—Hypocrea sulphurea.

Polyporus resinosus.—Polyporus brumalis.—Polystictus pergamenus.—Poria Tulipifera.—Irpex pachydon.—Hydnum ochraceum.—Polystictus perennis.—Lycogala Epidendrum.—Stereum (Aleurodiscus) Oakesii.—Peniophora incarnata.—Stereum (Hymenochaete) rubiginosum.

Lenzites saepiaria.—Hirneola auricula-Judae.—Guepinia elegans.—Daldinia concentrica. Stipitate form tending toward Daldinia vernicosa (in shape).—Trametes malicola.—Tremella mesenterica.—Polystictus. Unknown to me and unnamed, I believe.

OVERHOLTS, L. O., Missouri:

Polyporus zonalis, form rugulosus (see Note 139).

Fomes fraxineus.—Fomes salicinus.—Fomes graveolens. Fine specimens (see Note 140).

PAMMEL, L. H., Iowa:

Stereum frustulosum.—Poria pulchella.—Lentinus sulcatus. A very rare species.—Schizophyllum commune.—Trametes sepium.

PARISH, S. B., California:

Polyporus corruscans. Young. A rare plant (cfr. Note 47, Letter 44).

RICK, REV. J. Brazil:

Ascopolyporus polychrous. This is the first specimen of this genus we have ever received. Moeller gives an extended account of the genus in Phycomyceten und Ascomyceten.—Lentinus ciliatus.—Phylacia turbinata (=Henningsinia durissima Moel).—Hydnum pulcherrimum. Thinner than the plant with us.—Polystictus pinsitus.—Polyporus. Belongs to section Lentus, close to arcularius. Probably Polyporus depressus.

Lentinus villosus.—Polyporus porphyritis (see Note 141).

Polyporus varius. Brazilian form. Much *thinner* than the type form in Europe. Much like our form in the United States which we call "picipes."

Polyporus depressus?—Polystictus lutescens?—Fomes marmoratus.—

Polyporus subolivaceus.—Fomes lignosus.—Fomes geotropus.—Polyporus subfulvus.—Daldinia clavata. A form of concentrica.

Mycobonia flava.—Fomes pectinatus.—Lenzites striatus.—Stereum lobatum.—Polyporus licnoides.—Hydnum spongiosum. An excellent species. —Polyporus cubensis.—Stereum (Lloydella) membranaceum.—Irpex farinaceus.—Polystictus sanguineus. These specimens petaloid with a long stalk. —Schizophyllum commune.—Lenzites betulina.—Polyporus candidus.—Lenzites erubescens.

Ganodermus. Stipitate, belonging to Section 2 of my recent pamphlet, but not there included, and not, I believe, with a distinct name. It has same context, pores, and pore mouths as Fomes applanatus, but is stipitate and, I think, not a form of Polyporus applanatus. I have received the same plant before from Brazil. It was sent as Ganodermus fornicatus, from which it is entirely different in the stipe insertion, and in the nature of its pores.—Trametes on willow. Unknown to me.—Trametes cervinus? ?

SCARFE, W. A., New Zealand:

Fomes fraxineus? Only a section was sent, but it is a very large specimen, more than a foot in diameter, and with over twenty-five annual layers. When received, I referred it to Fomes hornodermus, which is the most common, tropical species with pale context. On making a comparative study, however, I conclude it is not Fomes hornodermus, but very close to, if not, the same as Fomes fraxineus of Europe. Fomes fraxineus, in England, where it has been called Fomes cytisinus, also sometimes occurs very large, "a foot or more across."

Daldinia concentrica. Also a mammoth in size, over three inches in diameter.

STIGLER, DR. T. E., Brazil:

Polystictus gilvoides.—Stereum lobatum.—Polystictus versatilis.—Polystictus versicolor.—Xylaria cerebriformis.

STOWARD, DR. F., West Australia:

Scleroderma flavidum.—Polysaccum pisocarpium.—Polyporus scrupulosus.—Lentinus fasciatus.

Polystictus cinnamomeus. This is exactly same as the European plant, although the usual Australian specimens have erect fibrils on the pileus, and named Polystictus oblectans Berk. (cfr. Note 10, p. 7, Pol. Issue, No. 1). —Polystictus cinnabarinus.—Stereum hirsutum.

TUCKER, SUSAN, Washington:

Secotium acuminatum.—Craterellus pistillaris (see Note 142).—Lycoperdon stellare (cfr. Myc. Notes, p. 225, Plate 57).—Catastoma circumcissum.—Lycoperdon fuscum.—Lycoperdon umbrinum.—Lycoperdon umbrinum, pale form.—Calvatia lilacina, var. occidentalis.

WHETSTONE, DR. MARY, Minnesota:

Polyporus spumeus.—Xylaria polymorpha.—Polystictus biformis. —Polyporus brumalis.—Lenzites betulina.—Hydnum septentrionale.—Dae-

dalea unicolor.—Polystictus hirsutus.—Trametes suaveolens (young).—Daldinia vernicosa.

Isaria farinosa.—Polyporus adustus.—Daedalea confragosa.—Stereum spadiceum.—Polystictus velutinus, var. Grayei.—Trametes hispida.—Tylostoma campestre.—Polystictus pergamenus.—Polyporus gilvus.—Tremellodendron pallida.—Polyporus lucidus.—Polyporus elegans.—Xylaria corniformis.—Polyporus picipes.—Polyporus Peckianus.—Polystictus perennis.—Tremella clavarioides (cfr. Myc. Notes, Old Series, p. 10).—Tremella vesicaria.—Lycogala Epidendrum.—Arcyria incarnata.—Helotium citrinum.—Otidea auricula.—Thelephora albido-brunnea.

WILSON, M. T., Scotland:

Fomes annosus? Specimen from a hot-house.

YASUDA, PROF. A., Japan:

Polyporus fumosus (=salignus, Fr.).—Stereum elegans (cfr. Letter No. 46).—Fomes torulosus.—Stereum spectabile.—Scleroderma Cepa. Small form.—Stereum hirsutum.—Lentinus subnudus.—Lentinus revelatus.—Enteridium olivaceum.—Stemonitis fusca.—Polyporus zonalis.—Fomes pusillus (see Note 143).—Phlebia strigosus-zonata. Resupinate.

NOTE 117.—**Polystictus variiformis as Trametes,** from Mr. Frank H. Ames, Brooklyn, N. Y. This is a rare plant, and this the first *pileate* specimen I have seen. In its perfect form it is a Polystictus. I had only seen the resupinate, and had this pileate specimen been sent without the resupinate, I should probably have been at a loss to refer it. I expect in the end that Polystictus hexigoniformis, recently described, will be found to be the same thing, nor should I be surprised if both turn out to be polyporoid forms of Lenzites heteromorpha, a rare plant of Sweden which, as noted by Fries, is sometimes resupinate and polyporoid. Mr. Ames' specimen recalls to me very strongly plants I have photographed in the museum at Upsala.

NOTE 118.—**Polyporus rufescens form Ballouii.** I believe it is a remarkable form of Polyporus rufescens or Polyporus biennis, as it is sometimes called in Europe, although it has such small pores that the species was not at first suggested to me. This is a nice specimen. Polyporus rufescens in Europe is characterized by very large pores. In fact, it has been called Daedalea. We have the same plant in this country, the pores of which are smaller, but I have never received a species, such as Mr. Ballou sends, where the pores are designated as minute. Excepting as to its pores, however, it is the same as Polyporus rufescens in context, color, and the spores, which are abundant, hyaline, and piriform, 4-4½ x 7-8 each, with a large gutta. The usual form in America is abortive and was named Polyporus distortus (cfr. Stip. Pol., p. 158). However, I have never seen the abortive form with such minute pores as Mr. Ballou sends.

NOTE 119.—**Polyporus alutaceus,** sent by W. H. Ballou, New York. This is the same as Peck, called Polyporus guttulatus. Bresadola has recently published them as synopyms, and on comparison of American and European specimens I find them the same.

NOTE 120.—**Fomes Ellisianus,** received from Prof. E. Bartholomew. This species is quite frequent on the Shepherdia argentea in our Western States, and was named as above by Anderson (it is alleged, but in reality by Ellis, for Anderson knew nothing about classification, and his name was only used as a ruse). It is exactly the same plant as grows on the Ash in our Eastern States named Fomes fraxinophilus by Peck, and I can note no difference on comparison either macroscopic or microscopic. The spores, which are abundant in these specimens, are elliptical, hyaline, smooth, 6-7 x 7-9 mic.

NOTE 121.—**Xylaria persicaria,** sent by H. C. Beardslee, North Carolina. This is the first collection, to my knowledge, since Schweinitz's day. There is one type specimen in Schweinitz's herbarium, and cotypes are at Kew, but these are all I have previously known. Ellis does not record it save Schweinitz's record. Schweinitz found it on buried peach seed, but these specimens were attached to Dogwood (?) seed. The species is quite similar to Xylaria carpophila, which is not rare on fruits of various kinds, as beach nuts, magnolia cones, etc. It is a much larger species, however, and often branched. Schweinitz's type has three branches. Most of Professor Beardslee's collection are simple, but several have two branches. It is an interesting find.

Ripe specimens which were afterwards collected (December, 1913,) have simple clubs with sterile apices. The spores are 6 x 12. The plant is very close to Xylaria Oxycanthae,

which Tulasne described on haw berries from England, and probably is the same species. Professor Beardslee thinks the fruit on which he finds it is that of the dogwood (Cornus florida).

NOTE 122.—**Thelephora cuticularis,** from H. C. Beardslee, Asheville, N. C. We take this in the sense of Morgan, for we know no other name for it, though it is not the same as type of Berkeley at Kew, which is Thelephora albido-brunnea. We think they are different species, though we are not sure.

NOTE 123.— **Hydnum fuligineo-violaceum,** sent by H. C. Beardslee, Asheville, N. C. Judging from the figures (Kalchbrenner 32, 2, Bresadola 139 and Karsten 11, 59) and from the description, Hyndum fuligineo-violaceum and Hydnum fennicum are very much the same species. It is characterized by the bluish tinge at base of stipe. The surface of Kalchbrenner's figure is smooth, of the other two with small scales, but the descriptions all indicate that the surface is sometimes smooth, sometimes broken into scales. The spores are not like Karsten shows, but for that matter I do not believe there are any species with colored, spinulose spores. They all have (in this section) irregular, tubercular spores.

NOTE 124.—**Hydnum putidum,** from H. C. Beardslee, Asheville, N. C. This is the first specimen I have received. It is a good species as far as America goes, and occurs in the South, not in the East. It has been referred to violascens in Europe, but I can not reconcile it to the illustration of Europe. It does seem to me to be same as violaceum, as illustrated and described by Quelet, which, he claims, is different from violascens. In the recent "critical" account of this "genus" in America and Europe the silence on the subject is quite profound.

NOTE 125.—**Polystictus elongatus,** sent by Mr. G. H. Cave, Darjeeling, British India. This, which is merely the tropical form of the common Polystictus pergamenus of temperate America, takes in the East two forms, one with the pileus more silky than the other. The plants that Mr. Cave sends are the silky form.

NOTE 126.—**Stereum princeps,** from Mr. G. H. Cave, Darjeeling, British India. This is the largest Stereum that grows, and is common in the East. At Leiden I saw thick specimens a foot in diameter. It is thick, hard, rigid, and perennial, with stratose hymenium. The emergencies are pale-colored, and with short spines. They would probably be called dendrophytes.

Stereum princeps is the analogue of Stereum subpileatum of the Southern United States, and practically a large edition of same plant. Both have same "structure," and both redden when the hymenium is bruised.

Berkeley re-named Stereum princeps Stereum scytale, and usually so determined it. He also called it Stereum contrarium.

NOTE 127.—**Trametes Carteri,** from Mr. G. H. Cave, Darjeeling, British India. The first collection I have received, and named from my photographs of the type, which was from India. Except as to pores, Trametes Carteri reminds me of rigid Daedalea unicolor, and might be characterized, in short, as rigid, trametoid Daedalea unicolor.

NOTE 128.—**Polyporus abruptus,** sent by Mr. Walter W. Frogatt, Sydney, Australia. I collected this plant in Samoa, and my Samoan collection has been compared with the type at Kew. Mr. Frogatt is the first of my correspondents who has sent it in. We have a very similar but slightly different species in the American tropics—Polyporus submurinus (named by Murrill as Trametes). The pileus of Polyporus abruptus when fresh has a delicate, rosy, smoky color. The color of our American plant is "mouse" gray, and it has slightly larger pores. In other features the plants are the same.

NOTE 129.—**"Xylaria" cinnabarina,** received from Mr. Frogatt. This was so named by Cooke. When the genera of these large Pyrenomycetes are worked out, I doubt if it will be included in the genus "Xylaria." On its perithecia character alone it belongs to Physacria, as Patouillard calls it; but when the large Pyrenomycetes are finally referred to genera, I doubt if the perithecia character alone will characterize a genus.

NOTE 130.—**Fomes martius,** also from Mr. Frogatt, Australia. This is a thin, applanate specimen and very close to Fomes hornodermus. The context is somewhat "punky" in this specimen, very hard and compact in hornodermus. It is also a thinner species than hornodermus. When received in America, I referred the specimen to Fomes ligneus, but on comparing at Kew I find it the same as Fomes martius from Brazil.

NOTE 131.—**Fomes marmoratus.** In our Note 33, Letter 43, my apologies are tendered to Mr. Swartz. I thought I had located all of Swartz' types at the British Museum, and never questioned the plant from Jamaica, which passed as the type of Fomes fasciatus. That it is the same as Fomes marmoratus there is no question; but since Mr. Romell has raised it, there is a question as to it being Swartz' type. I carefully noted the label on my last visit to the museum, and there is nothing to connect it with Swartz. It is a very old specimen from Jamaica, collected by a Mr. Poore.

We have heretofore called the plant Fomes fasciatus on the strength of this specimen, but since a type in Thunberg's herbarium is not the same (cfr. Note 33), we must abandon the name for this species and take Berkeley's more recent, but more certain name, Fomes marmoratus.

NOTE 132.—**Polyporus spumeus,** received from Thos. Langton, Toronto, Canada. While this is not a rare plant in America, it has not been recognized in the current traditions, and appears in Murrill's work as Polyporus galactinus, a misreference, cfr. Note 147. I learned Polyporus spumeus at Upsala, and it is usually correct in the current European literature. When fresh it is pure white, but discolors in drying. Dried specimens are easily confused with Polyporus salignus, from which it differs in a spore character. The American specimens (as this from Mr. Langton) are usually thinner than my European material.

NOTE 133.—**Fomes geotropus,** from Mr. W. H. Long, collected in the Southern States. A destructive rot on the cypress of the South, causing the hollow trees. There is a question as to the name to employ. First, a question whether it is or is not Fomes lignosus, so common in the tropics, and the destructive disease of the rubber tree (cfr. Myc. Notes, page 519), with which it seems to agree in everything excepting the surface of the pileus. Second, whether it is not Fomes ulmarius of England, which is very close to it, but has bright pores. Fomes ulmarius, Fomes lignosus, and this species are all three *very closely* related plants, and, I believe, in the end will be held to be essentially the same.

NOTE 134.—**Polyporus fissilis,** received from Mr. W. H. Long. This is the first specimen I have received. I think Murrill has this right as to species, although the type at Kew is a single, thin slice about which I could not tell much, never having seen a specimen. I found the spores of the type abundant, globose, 6-7 mic. hyaline, with thick walls, and as Murrill states that they are ovoid, 3 x 5. I questioned his determination, but it proves only to be one of his inaccurate spore records. The spores of Long's specimen are same as the type. Nor does it belong to the section Spongipellis, in the sense of the man who proposed this juggle.

But this same plant grows in Europe, at least a plant that I can not distinguish on comparison. The spores of the European plant are smaller, measuring about 4 mic., but a species can not be maintained on that difference. The European nomenclature is more confusing than the American. Bresadola in Fungi Kmet. referred it to Polyporus rubiginosus "Fr.," and afterwards he determined specimens for both Romell and Bourdot as Polyporus albus "Fr." I can see little resemblance to the figure Fries cites, but the description, "poris ex albo rufescentibus," would seem to indicate it. Recently Romell has named the European plant Polyporus albo-sordescens, which is a good name for it. There are discrepancies given in the spore records of the various authors. Romell ovate, 3 x 4-5; Bresadola obovate, 3½-4 x 5-6. I make them globose when perfect, although many are as Romell states.

Notwithstanding the spore discrepancies, I do not doubt the practical identity of the American and European plants. It is a very peculiar species, white when fresh; it turns reddish in drying, particularly the pores, which turn darker than the flesh, and coalesce into a rigid mass. This is due no doubt to some chemical constituent that oxidizes. I think it is of a resinous nature.

We have another similar species in our Western States, Polyporus amarus, as recently named by Hedgecock. It grows on the incense cedar in California. This differs from Polyporus fissilis in spores (5 x 8), and the nature of the flesh, which is brittle, not fibrillose.

The name fissilis means capable of being split in the direction of the grain, and is not a bad name for our American plant. Polyporus fissilis with us is of a Southern range. Mr. Long's specimen is from Mississippi, and at New York are four collections all from the South.

NOTE 135.—**Fomes texanus,** from Mr. W. H. Long. Cotype specimen. Growing on juniper, living trees. This specimen is quite close to Fomes igniarius, as it grows on poplar. I question if it would be practical to distinguish the sporaphores alone. It has the same yellowish mycelium, black, rimose surface, and the context is very nearly the same color. It has no setae. The spores are 7-8 mic. (not 3-4 as stated), globose, smooth, and almost hyaline. I think they are very pale-colored, at least their abundance would so indicate. The spores of Fomes igniarius are slightly smaller and hyaline.

NOTE 136.—**Hydnum mirabile,** sent in by George E. Morris, Waltham, Mass., as to Peck's determination, and no one has ever proven he was wrong. (Cfr. Fries, Icones, t. 3, fig. 2.) Nothing is known of Fries' plant in Northern Europe excepting this figure. Our American plant has a sharp, peppery taste when fresh, and is supposed to be the same as is found in France and called Hydnum acre by Quelet. Then Atkinson sent our American plant to Bresadola, who discovered that it was a "new species," and Atkinson published it as Hydnum cristatus. When the truth is learned about that rare Northern plant of Europe, I have no doubt that it will be found that Peck was right, and that the plant is Hydnum mirabile.

Since the above was written, I have received specimens of Hydnum mirabile from Erik Haglund, who has been fortunate enough to find recently this long-lost species of Sweden. Also an authentic specimen of Hydnum acre from Bresadola. As I have several collections of our American plant, when I get home and can compare this material, I ought to reach some definite conclusions on the subject that has long puzzled me as to these three species.

NOTE 137.—**Daedalea ochracea,** received from Geo. E. Morris, Waltham, Mass. I would designate the light-colored forms of Daedalea unicolor that frequently reach me, which correspond to Polystictus ochraceus as forms of Polystictus hirsutus.

NOTE 138.—**Hydnum suaveolens,** from Geo. E. Morris, Waltham, Mass. This specimen corresponds to the Swedish plant, as I have collected it in Sweden. It is quite close, but, I believe, different from the usual American collection (cfr. Note 69), which we call caeruleum (which is Peck's cyaneotinctus).

NOTE 139.—**Polyporus zonalis,** sent in by Mr. L. O. Overholts, St. Louis, Mo. Temperate region form. So named by Bresadola, and, I think (in substance), correct. The pores, spores, and pore color are same as the tropical form, but the surface of pileus is quite different. Polyporus zonalis figures in our records only as a tropical plant, and the finding of a temperate region form is a matter of interest. The form that Mr. Overholts sends does not have the strong zones of Polyporus zonalis (typical of the tropics). It is what Léveillé called Polyporus rugulosus.

NOTE 140.—**The odor of Fomes graveolens.** "In September of this year I found this plant, a fine lot, growing on a dead but erect stump of a sugar maple tree. The plant had no other than a slight fungus odor, and they were in growing condition. When my father saw the specimens, he remarked the plant was sweet knot, and that his father used to collect it and carry it home and place it in the living room, where it soon scented the whole room. When I told him that these specimens had no odor, he appeared to think that the plant was not old enough for that."—L. O. Overholts.

NOTE 141.—**Polyporus porphyritis,** from Rev. J. Rick, S. J., Lageada, Brazil. This, which seems to me, the only American representative that we have of the section "Microporus," is thicker and has larger pores than those of the Eastern species.

NOTE 142.—**Craterellus pistillaris,** from Mrs. Susan Tucker, Cheney, Washington. Undoubtedly a form of Clavaria pistillaria, as stated in Note 56, and this collection is the first strongly differentiated form we have seen. It was this form that Peck misdetermined as Cantharellus clavatus (cfr. Note 56). This is quite a different plant from Cantharellus clavatus.

NOTE 143.—**Fomes pusillus,** from A. Yasuda, Sendai, Japan. Unguliform, 1 to 1½ cm. in diameter. Surface with a brown, smooth crust. Context cinnamon brown. Pores very minute. Spores globose, hyaline, 6-7 mic. Setae none. Specimen (No. 185) from A. Yasuda, Japan, growing on stems of Zelkowa acuminata. This little Fomes is quite close to Fomes jasminus, found on the Jasmine in Europe, and has similar microscopic characters. It is much larger, with a smooth crust and different habits of growth. The spores of Fomes jasminus are slightly colored and much smaller.

NOTE 144.—**Polystictus Sequoiae,** from Mr. J. R. Weir, Priest River, Idaho. This very peculiar species has been named three times. First, it reached Ellis from Macoun, who named it Polystictus cuneatus, but never published it. Murrill published it under Ellis' name. Then Copeland collected it and published it as Trametes Sequoiae, a good name for it, as it seems to only grow on the Sequoiae and allied trees. Recently Murrill on his Western trip collected it and discovered that it was a new species, and called it Polystictus Washingtonensis. It is a very peculiar thing. Pure white when fresh, but it discolors when old. Large pores. Context so soft and spongy that it can be pressed into a wad like a piece of elder pith. It does seem a thing so marked and peculiar should be recognized without the necessity of three different names in two different genera in a half-dozen years. Mr. Weir finds it abundant on Thuja plicata.

NOTE 145.—Professor McGinty has sent us a clipping from the American Boy, for March, 1913, taken from the "Popular Science Department," under the heading, "Nature Puzzles and Their Answers." We reproduce it exactly as written with the exception of the cut, which is a little figure of Geaster hygrometricus. We did not know Professor McGinty was at the head of this department, but it reads very much like his work.

THE AMERICAN BOY.

POPULAR SCIENCE DEPARTMENT

A Department of Interest to Young and Old

Edited and Illustrated by Professor A. Hyatt Verrill

Nature Puzzles and Their Answers

Earth Star

Robt. Ashburn:—The very perfect and interesting fungus arrived safely, and your drawing and description are so good that I am publishing them just as they are. Robert says, "It lives for three years, and will digest leaves and worms when they get in the 'clinchers' or points. It has a puff-ball in the center, and when dry the points close up and throw the spores out. From these spores grow the young. When the ground is wet the points expand, and often it rolls over, so it is constantly changing its location. It is found mainly in moist spots under boards, where the dampness is retained."

These "Earth Stars" are a species of fungus belonging to the puff-ball group and the genus Zeaster. Many species are found on dry and barren sand plains, or on rocky hillsides, while others are found beneath logs, etc. Robert's statement that they will digest worms is surprising, as few fungi are carnivorous, and I have never before heard this trait attributed to the earth stars.

NOTE 146.—**More about Professor McGinty.** "In looking over your Notes and Letters I was much interested in Professor McGinty's determinations. I had made up my mind that he was the own brother of Sairey Gamp's friend, Mrs. Harris, but not until I had read your Letter No. 38 did I realize that there was any relationship by marriage between Mrs. Harris and the immortal Sairey."

Professor McGinty's relationship does not end with Dickens' characters. He is a full brother and an honored member of that brotherhood of deluded individuals who think that "modern science" consists in digging up old corpses of discarded synonyms and attempting to inject life into them.

NOTE 147.—**Polyporus galactinus.** Although this species was originally named from Cincinnati, I have been fifteen years puzzling over its identity, and only lately have become thoroughly satisfied on the subject. Morgan had it right in his flora. It is a common species in our woods, late in the season, on rotten logs. When fresh the surface is fibrillose, rugulose, pubescent, with projecting hyphae. The color is sordid white, and when fresh it is zoned within. The spores are subglobose, 3½ x 4 hyaline, smooth, with a unilateral gutta. It dries rather firm and hard. I do not know the plant as a European species.

The plant is quite close to Polyporus spumeus of Europe and America, but the latter plant has larger spores, the flesh is white and not zonate, and it differs entirely in its habits. Polyporus spumeus is not a saprophyte on dead wood, but a heart rot, and the fruit is developed from knot holes or decayed portions of living trees. Polyporus spumeus is one of the few fungi that affect the apple trees. Murrill, as far as I can make out, does not include Polyporus galactinus at all in his work. What he calls Polyporus galactinus is Polyporus spumeus.

NOTE 148.—**Polyporus lacteus.** We finally accept Polyporus lacteus as the name for a common white species that has puzzled us for years. We accept it in the sense of Bresadola, but we can not reconcile it with Fries' description. The pores are small, round, and regular. Fries described the pores as "elongated flexuous, becoming labyrinthiform," and so shows them in his icones. Such a discrepancy would be a bar to taking the name, were it not for the fact that it is a common plant, and we have no other name for it, and do not propose to call it a "new species." And if it is not Polyporus lacteus, not only is this common plant unplaced in Fries, but Polyporus lacteus is unplaced as far as I know.

In this sense Polyporus lacteus is a frequent plant, pure white when fresh. Context white, without zones, drying soft and friable. Pores small, round. Spores allantoid, 1-1½ x 5-6. Surface fibrillose, rarely almost pubescent, varying to almost smooth.

Polyporus lacteus is virtually same plant as Polyporus albellus, and runs into it in every intermediate gradation. Theoretically (and often in reality) Polyporus albellus has a grayish, smooth surface, not fibrillose, but in other characters, flesh, pores, and spores is exactly the same, and the surface difference is probably (and apparently) not a definite character. In practice it is very difficult to definitely refer many collections that are intermediate between these two species.

Polyporus albellus has been confused by Karsten, Murrill, and, I think, by Fries in his latest work, with Polyporus chioneus of Bresadola, and that of Fries in his early days, which was surely a different plant.

NOTE 149.—The evolution in the history of fungus—**Polyporus rheades.** Our knowledge of the history of fungi is being gradually evolved. We learn a little here and a little there, and hardly a week passes but something is added to the general stock. Polyporus rheades is one of Persoon's species, and good types are in the museum at Leiden (cfr. Myc. Notes, p. 467). Fries called it Polyporus vulpinus, and under this name I first learned it from Mr. Romell. It grows on poplar, and is usually thin and extended in its manner of growth. While we have known it for a number of years, we never suspected that it was the same as the next plant. During one season, while I was collecting at Femsjö, where Fries made most of his collections, I found with Mr. Romell a large, soft, ungulate species on oak. I knew that Fries must have met the plant and had a name for it, and I soon convinced myself that it was the lost species of Europe that Fries called Polyporus corruscans. Mr. Romell had not figured that out, but he knew the plant that Fries called Fomes fulvus, and which Bresadola has renamed Polyporus Friesii, which, from what Mr. Romell told me, I was convinced was only a later stage, more hardened and indurate, but the same plant that we have found at Upsala (cfr. Letter 44, Note 47). I think Mr. Romell partially agreed to it. The next development was when I found that a plant that Berkeley had named from the United States as Polyporus dryophilus is exactly the same plant as our Swedish plant. I sent specimens to Bresadola, and he confirmed my decision.

Recently I was favored with a visit from Mr. Long, Forest Pathologist of the United States Department of Agriculture. I am always glad to see Mr. Long, for he has made extensive observations in the field, and I learn much from exchanging notes with him. He knew Polyporus vulpinus from Romell, as he finds it on poplar, and also Polyporus dryophilus (as he calls it, on oak), and he had decided that they were the same species, modified only by the host. On closely comparing them I reach the same conclusion. I wonder if the final chapter is now written as to this species. As to the name to use when a plant has so many names, every fellow will have his own idea. I shall call the large form on oak Polyporus corruscans; the small, often imbricate form, on poplar, Polyporus rheades.

This species (Polyporus rheades and Polyporus corruscans) is characterized by first developing a kind of mycelial cushion or core on which the tissue of the pileus is de-

veloped. This core I have noted on specimens for a long time, but did not correctly understand it, as I took it to be diseased tissue. Hartig shows this core (Plate XVII) and explains it in his classical work on Tree diseases, but it must be noted in passing that Hartig misnamed Polyporus rheades as Polyporus dryadeus. It is a striking commentary on the state of fungus taxonomy in Europe, that in Hartig's classical work, of the thirteen species he so beautifully depicts, six surely, and probably seven, are misnamed.

ILLUSTRATIONS OF JAPANESE FUNGI.

We have received from the Bureau of Forestry, Department of Agriculture and Commerce, Japan, the first issue of a series, consisting of four plates, devoted to the illustration of Japanese fungi. As a striking evidence of the wide distribution of fungi, any one who is familiar with these plants can look over the figures and from the species illustrated would hardly know whether they were collected in the United States, Europe or Japan. Of the 38 species that are illustrated, 35 of them look familiar to us and we believe that we have collected almost every one of them either in the United States or Europe, with the exception of four. Polystictus flabelliformis, a very familiar plant to us in Samoa, does not occur in the United States or Europe. "Isaria arachnophila," which seems to be the only misnamed plant on the plates (as it is probably not an Isaria, but a Cordyceps, and has not the most remote resemblance to Isaria arachnophila), is unfamiliar to us.

The plates are a great credit to the publishers, both from their accuracy and coloration. With the exception of Isaria arachnophila, all of them, we believe, are correctly determined, and we are very glad to note that the names used are mostly those established in mycology, and that no attention whatever has been paid to those engaged in juggling fungus names. We are glad to see that every single one of the Gasteromycetes is not only characteristically illustrated, but correctly named. Also that the author was fortunate enough to use the name Geaster hygrometricus, attributing it to Persoon, instead of the latest juggle, calling it Geaster stellatus, or Astraeus stellatus and attributing it to Linnaeus, or Morgan, or Schroeter, or somebody else that had nothing whatever to do with it.

If he had been as consistent in every particular, it would have been much better. Thus, it is somewhat provoking to one familiar with the situation to see a plant called "Spathularia clavata, Saccardo," which was well illustrated and well known, and had a well-established name long before Saccardo was born. Or, to see a plant called "Ithyphyllus impudicus, Fries," when Fries did not originate the specific name impudicus nor sanction the genus Ithyphallus, and never used the combination in any way. In citing authorities the author seems to be following the custom of a few English writers of substituting, after the specific name, not the name of the man who named the plant, but the name of the man who made the combination. This custom is followed, so far as we know, only by a few Japanese and a few English, and repudiated generally by most English, the Americans, Germans, French, and all other nations, as it should be by all, for it is based on dishonesty in principle. The double system of advertising which is generally employed in America and Germany is bad enough and leads to enough abuses, but if the dishonest

principle of writing the name of a man who shifts a species around to another genus, instead of the name of the man who named the species, is ever generally adopted, there will be no end to the abuses to which it will lead.

In the first issue of plates embracing 38 names, only three of them are discredited names, viz., Ithyphallus impudicus, Spathularia clavata, Amanitopsis vaginata, and each one of these has written after it the name of a man who had nothing to do with the naming of the plant.

We presume there is no ointment but what has its fly in it, and it is a pity that a beautiful set of illustrations such as this should have been marred by the adoption, even in three instances, of discredited names. We, of course, do not feel that the author of these plates was personally responsible for this, as he no doubt followed some English "authority." English mycologists could be better employed. It is gratifying to note, however, that two of the recent English writers, namely, Massee and Swanton, have repudiated the whole business and are simply employing a binomial as the name of a plant and leaving off all the personal advertisements. In our opinion, this is a plan that should be adopted in a work of this kind and is the only plan that will be of any stability. We are all of us interested in plants, and all interested in seeing them have proper names, but very few of us have any interest in the party who named them, much less in the parties who juggle them.

We do not know if this set of beautiful plates can be obtained by purchase in the United States, but any one who feels interested in mycology would find them very useful, for they are quite characteristic and most of them occur in the United States. The coloration and drawing are remarkably accurate and put to shame many of the ornate illustrations issued from this country.

But one figure, namely Polyporus volvatus, seems a little unusual. The figure has the top attached by a little curved stem. We have no doubt this was the case with the plant from which this figure was drawn, but it is probably an abnormal condition of the collection. Polyporus volvatus is normally attached by a sessile base, without a stem, both in this country and Japan, in most of the specimens that we have seen from both countries.

We congratulate the Bureau of Forestry of Japan on the excellent work that has been done on these plates, and hope it will be followed with a continuation.

NOTE 150.—**Merisma cristata.** Il parait exister en Europe une grande diversité d'opinion en ce qui concerne l'identité de Merisma cristata de Persoon. Puisqu'il existe des types incontestables dans l'herbier de Persoon, quelqu'un devrait étudier ces types et éclairer la vérité. Bresadola le rattache au Sebacina incrustans et déclare qu'il possède basidia divisé en croix et lisse, hyaline, spores. Patouillard maintient qu'il forme un genre séparé, que ses basidia ne sont pas divisés en croix, et que le spores sont echinulate, hyaline. Dernièrement von Hohnel publia son opinion que c'est un Thelephora et possède des spores colorés et anguleux. Quelqu'un se trompe, évidemment. Tous trois ne peuvent avoir raison à la fois. J'ai vu le spécimen dans l'herbier de Persoon, mais je ne sais si Patouillard ou Bresadola est dans l'erreur, car je ne sais quel genre de spores et de basidia ce spécimen possède. Je sais cependant que von Hohnel s'est trompé car ce n'est clairement pas un Thelephora. Von Hohnel a la réputation d'être un bon microscopiste mais il tire des conclusions en se basant sur des preuves très insuffisantes.

Pendant que nous traitons de ce Merisma cristata, je voudrais bien savoir si, en Europe, quelqu'un connait une plante dont l'habitat s'accorde avec le Bulliard's (T. 415, f. 1) que cite Persoon. Je n'ai jamais vu pareille plante dans aucun musée, et je no crois pas que les types contenus dans l'herbier de Persoon puissent se référer à ce dessin.

LETTER No. 50.

REVISION OF FUNGI IN THE SCHWEINITZ HERBARIUM

By C. G. Lloyd

(Cincinnati, November, 1913.)

Lewis David von Schweinitz, as his name was in full, blazed the trail for fungus work in America. Nearly 100 years ago (1818) he published the first paper on the subject, Synopsis Fungorum Carolineae. He was a Moravian minister, and his interest in fungi was awakened by his tutor, Albertini, while Schweinitz was a student in Europe. He published, in collaboration with his tutor, a work on the fungi of Niesky, where his college was located. On his return to this country he was located for six years at Salem, North Carolina, and his work on the fungi of that locality was recorded in the work cited. Afterwards he removed to Bethlehem, Pa., his native town, and his final work, Synopsis Fungorum in America Boreali, appeared in 1831 in the Transactions of the Philadelphia Philosophical Society. A few years later (1834) he died.

Schweinitz, in these early days, seemed to have been absolutely alone in his studies in this country. His first text-book was Persoon's Synopsis, which he followed in his first work; but before the second work appeared, Fries had come to the front in Europe, and the second work of Schweinitz was based on and followed the nomenclature of Fries' Systema.

Schweinitz' herbarium is preserved in the Academy of Natural Sciences at Philadelphia, and as it is the beginning of fungus work in this country, it is the starting-point of American history of the subject. Every attention is given to the student at the Academy, and my personal thanks are extended to Stewardson Brown for privileges of working with the herbarium during several visits I have made to Philadelphia for this purpose.

This is not the first commentary that has been written on Schweinitz's specimens. There appeared in the Journal Academy Natural Sciences, Philadelphia, 1856, a commentary under the joint authors' names of Berkeley and Curtis. It was very correctly and carefully written, and, with a few exceptions, the determinations were correctly made. It is quite evident to me that while the paper was claimed to have been written by Berkeley and Curtis, that Berkeley alone was the author. In the first place, Curtis had a very scanty knowledge of fungus classification, and was totally incompetent to write a critical commentary such as this; and, in the second place, there are references to specimens in Hooker's herbarium, specimens that Berkeley alone could have seen. It is also evident that Berkeley saw the specimens as contained in the original wrappers of Schweinitz. Curtis did not divide the specimens and send them to Berkeley, for the few little frustules that are preserved at Kew could not have been the basis of this work. It is my belief that Curtis sent the herbarium to Berkeley, and after Berkeley had written the article it was returned to Curtis and replaced in the museum at Philadelphia.

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Some fifteen or twenty years ago the specimens were taken out of their original wrappers, new labels were written, and they were numbered systematically by numbers corresponding to the numbers Schweinitz used in his Synopsis in America Boreali. While this makes them very much more convenient for reference, I think it is really unfortunate, for the specimens have lost to an extent their value as absolute type specimens. The work was done by some one who had no critical knowledge of the subject, and it is evident on the face that in a few instances transpositions have been made in numbering the specimens. I have made a note of instances where it seemed that this was probably done, but, of course, I have no evidence on the subject excepting the evidence of Schweinitz' writings.

Schweinitz, who is the only one who has written on American fungi, who was familiar with the fungi from first studies in Europe, referred to European species the greater part of the American species that he met. His determinations of Agarics, of course, can never be checked up, and one is impressed with the number of Polypores that Schweinitz misdetermined. There must be taken into account, however, the condition of the science of the time Schweinitz wrote. His first text-book was Persoon's Synopsis, which contained but brief descriptions of European species, and it was to be expected that many determinations made under these conditions would be erroneous. I doubt if any one working under the conditions under which Schweinitz worked could have done any better.

In the following list the numbers are as the plants are now mounted, referring to numbers in Synopsis America Boreali. Plants in italics were claimed by Schweinitz as new species.

AGARICS

Only a few Agarics are found in the herbarium as follows:

100. Collybia *siccus*—now Marasmius and the common plant that Peck called Marasmius campanulatus.

108. Collybia stipitarius.—This is not stipitarius of Europe, but Collybia zonata of Peck.

147. Pleurotus petaloides.—This is Panus angustatus, of Berkeley and Morgan, Pleurotus petaloides, of Peck. It is a question whether it should be classed as Panus or Pleurotus.

148. Pleurotus lamellirugis.—This is now Paxillus panuoides.

152. Pleurotus stypticus.—Correct now as Panus.

154. Pleurotus algidus.—This is Pleurotus atrocaeruleus of Peck's work.

160. Pleurotus striatulus.—This is the little plant which I believe to be correct.

162. Pleurotus *niger*.—I am not sure I know this. Quite similar to above, but seems larger and thicker.

229. Crepidotus depluens.—I should not like to say that it is not correct, but I think it is not.

230. Crepidotus violaceo-fulvus.—Berkeley passed this as being Pleurotus pinsitus of Europe. I do not know it, but I think it is what Peck has called Panus salicinus.

255. Coprinarius disseminatus.—Now Psathyrella, but no specimen on the bark preserved.

267. Favolus alveolarius.—This is the common Favolus europaeus, always misreferred by Berkeley to "Favolus Boucheanus" (which is a Polyporus), and the Schweinitzian reference is also an error, as the old Bosc illustration on which the name is based is a crude figure of Polyporus arcularius.

268. Favolus *abnormalis*.—No specimen preserved.

Lentinus Nos. 269 to 277, not a specimen preserved.

278. Cantharellus aurantiacus.—Specimen poor.

279. Cantharellus cibarius.—Specimen correct.

280. Cantharellus tubaeformis.—Specimen correct.

281. Cantharellus lutescens.—Specimen correct.

282. Cantharellus cinereus.—Specimen poor, but correct.

283. Cantharellus cornucopioides.—Specimen correct as Craterellus now.

284. Cantharellus *odoratus*.—This rare species, which Schweinitz records as having collected once only, is represented by a fairly good specimen. It is an evident Craterellus, as Berkeley states. There are better specimens at Kew. I do not know it otherwise.

285. Cantharellus *roseus*.—No specimen preserved.

286. Cantharellus *cinnabarinus*.—No specimens, but the plant is common and well known under Schweinitz's name.

287. Cantharellus *floccosa*.—Good specimen, as now well known. It is our largest species of Cantharellus, and does not occur in Europe. I have, however, a specimen from Japan.

288. Cantharellus *helossoides*.—No specimen preserved.

289. Cantharellus crispus.—Specimen correct. As Trogia now.

290. Cantharellus *incarnatus*.—Specimen correct as Merulius and the finest species of Merulius that occurs. It is a beautiful plant when fresh. Berkeley incorrectly refers Schweinitz' species to Merulius tremellosus, our most common species, which Schweinitz records in his Fung. Car., but overlooks in his second list. Peck has renamed Schweinitz's species Merulius rubellus.

291. Cantharellus *confluens*.—It is Merulius Corium.

292. Cantharellus *spathularia*.—Specimen correct as Guepinia.

293. Cantharellus *Cupressi*.—This is not a fungus, but an insect gall (cfr. Myc. Notes, page 497). I found it abundantly in Florida recently, and it simulates a Cyphella so closely that Schweinitz can hardly be blamed for mistaking it for a fungus. When fresh it is white, but old specimens are dark reddish.

294. Cantharellus muscigenus.—Specimen poor.

295. Cantharellus fissilis.—No specimen preserved.

296. Cantharellus muscorum.—No specimen preserved.

297. Cantharellus tenellus.—I do not know it, but think more probably a Pleurotus. The gills are too well developed for Cantharellus.

298. Cantharellus cupularis.—Specimen poor.

299. Cantharellus *fasciculatus*.—No specimen preserved.

300. Cantharellus *olivaceus*.—This name should be restored as Paxillus. It is what Berkeley named Paxillus Curtisii, and what Peck has always so determined. Atkinson recently discovered that it was a "new species," and published a fine photograph of it under the name Paxillus corrugatus.

301. Cantharellus *viridus*.—No specimen preserved.

302. Schizophyllum commune.—Specimen correct.

Boletus, Nos. 303 to 319, but one specimen is preserved, viz., No. 315 Boletus floccopus. This is now known as Strobilomyces strobilaceus, and it is doubtful if Strobilomyces floccopus is different, not in the sense of Schweinitz at least.

POLYPORUS

Section subcarnosi

Now known as Section Ovinus. There are no specimens preserved now in this section. From our knowledge of the species that occur and Schweinitz' record, we feel able to interpret his record.

320. Polyporus subsquamosus.—No specimen preserved. The plant that Peck has named Polyporus griseus, and Fries poorly figured as Polyporus subsquamosus, but very doubtful as to "Linnaeus." Compare my pamphlet on section Ovinus, p. 78.

321. Polyporus ovinus.—No specimen preserved. The records of Polyporus ovinus in this country are so doubtful (cfr. Ovinus, p. 76) that it is doubly unfortunate that Schweinitz did not preserve his specimen. From the name Schweinitz first applied to the plant (albidus), it is probable that he did find Polyporus ovinus. It is certainly very rare, if it occurs in the United States, though it is frequent in Sweden. It is the only fleshy, mesopodial species of Europe which any one would be liable to designate as "albidus."

322. Polyporus melanopus.—The specimen is devoid of stem, but is a small plant of what is now known as Polyporus picipes. It is not melanopus, which is a closely related plant of Europe.

323. Polyporus fuligineus (in error evidently as fuliginosus).—It has large pores, and is not fuligineus as illustrated in Europe, which has minute pores, although fuligineus is not a species now known in Europe, being based on an old figure (cfr. Stipitate Polyporoids, p. 168). Schweinitz records Polyporus fuliginosus as being "frequent" in woods, but his specimen is not a species "frequent" nowadays. It is a small specimen of what Peck has referred to Polyporus pallidus, and which I consider as a scaleless form of Polyporus squamosus (cfr. Ovinus, p. 85), a rather rare plant. Sumstine recently discovered that it was a new species, and called it Polyporus Pennsylvanicus. Schweinitz has no record of Polyporus squamosus, and undoubtedly never met it.

324. Polyporus brumalis.—No specimen preserved. As Schweinitz records brumalis "rare" and leptocephalus "common," what he called leptocephalus was probably brumalis.

325. Polyporus ciliatus.—No specimen preserved. Probably the late summer form of Polyporus arcularius, which is depauperate and ciliate. It was called by Berkeley Favolus Curtisii, and renamed by Murrill, Polyporus arculariellus. Schweinitz records the common Polyporus arcularius in his Fung. Car., but overlooks it in his second work.

326. Polyporus leptocephalus.—No specimen preserved. Probably based on brumalis, for leptocephalus is not known in Europe now except from old figures, and is certainly not "passim" in America (cfr. 324).

Section Coriacei

Now called Section Pelloporus.

327. Polyporus perennis.—Misdetermination for Polystictus focicola.

328. Polyporus rufescens.—Misdetermination for same (focicola) as above. It was misreferred by Berkeley to Schweinitz' Polystictus connatus, and for many years Polystictus focicola passed in American Mycology as being Polystictus connatus (cfr. Pol. Issue, page 10).

329. Polyporus Schweinitzii.—Specimen correct.

330. Polyporus *connatus*.—The "type" specimens are Polystictus perennis (cfr. 327 and 328 above).

331. *Polyporus radicatus*.—No specimen preserved, but is a well-known endemic species, which has no analogue in Europe. It does not belong in this section, however.

Section Pleuropus.

332. Polyporus varius.—No specimen preserved, but it surely is the plant now called Polyporus picipes, which *is the American form of Polyporus varius* of Europe.

333. Polyporus badius.—No specimen preserved; but from Schweinitz' record and reference it is now called Polyporus elegans.

334. Polyporus lucidus.—The species in Schweinitz' herbarium is Polyporus Curtisii, which might be considered as an unvarnished, yellow form of Polyporus lucidus. I think it quite distinct from lucidus.

335. Polyporus umbellatus.—The specimen is Polyporus frondosus.

336. Polyporus frondosus.—No specimen preserved. As Schweinitz determined Polyporus frondosus as being Polyporus umbellatus, and as from his record it is probable that his Polyporus giganteus was Polyporus Berkeleyi, it is probable that his record of Polyporus frondosus was based on Polyporus giganteus, and that he never met the rare Polyporus umbellatus.

337. Polyporus giganteus.—No specimen preserved; but from Schweinitz' remarks it is probable that the plant he determined as being Polyporus giganteus was what is known now as Polyporus Berkeleyi.

338. Polyporus cristatus.—This always passed in American mycology as Polyporus flavovirens, and it is only in recent years that its identity with the European species has been settled (cfr. Note 4, Letter 29). Schweinitz had it right in his writings, and he is the only American mycologist that has had it right. The specimen is a merest fragment, and I would not pass on it, but think it also is correct, though very much changed in color.

339. Polyporus sulphureus.—Specimen correct.

340. Polyporus imbricatus (as intricatus in error).—No specimen preserved. In Europe it is now held to be a condition of Polyporus sulphureus, and so it was no doubt in the sense of Schweinitz.

341. Polyporus *gravcolens*.—Specimen correct. As Fomes now.

Section Apus.

342. Polyporus hispidus.—Specimen correct. Specimen appears harder than the species should be and has lost its surface characters. Spores same, however, and specimen no doubt correct.

343. *Polyporus labyrinthicus.*—There is no specimen so labeled now, but I have little doubt that it was the same as Polyporus unicolor or as named by Berkeley, Polyporus obtusus. The description applies to this plant exactly and the description of unicolor with its "stipite centrali umboniformi" does not apply to the specimen so named in the herbarium now. Polyporus labyrinthicus is one of the mysteries of Schweinitz' records. Berkeley and Fries both saw specimens and both commented on what a marked species it was. No trace of a specimen is preserved, however, at Kew or Upsala. The remarks of both (except some minor discrepancies) would indicate that the plant now known as Polyporus obtusus is what Schweinitz had. Ellis first distributed Polyporus obtusus under this name, but sent a correction later.

344. Polyporus spumeus.—No specimen preserved, and as the species is white, and Schweinitz records it subspadiceus, there is probably an error of determination. Polyporus spumeus is a frequent American species not current in our literature because not recognized. Murrill mistakes Polyporus spumeus as being Polyporus galactinus.

345. Polyporus betulinus.—Specimen correct.

346. Polyporus chioneus. This is Polyporus albellus, I believe, although the specimen has a decidedly yellow tinge that I do not know in connection with albellus. The surface and spores are same as albellus. It is chioneus of several (Murrill, Karsten), but of Fries doubtful. It is lacteus of Bresadola, also of Fries doubtful.

347. Polyporus destructor.—I do not know destructor in Europe and I can not say as to this old specimen. It seems to have been a white plant and the pores remind me of those of spumeus. I find large 10-12 subglobose spores, but may be accidental. Schweinitz labeled it with a ? mark.

348. Polyporus lacteus.—Species too poor for comment.

349. Polyporus stypticus.—No specimen preserved. It is unfortunate that there is no specimen in Schweinitz' collection, for it is a species not settled in Europe to-day. What the French call Polyporus stipticus does not agree with the original description, and is Polyporus albidus for Bresadola. I have a suspicion that Polyporus stipticus, in its original sense, is more common with us than in Europe, and I suspect that it is the foundation of Polyporus cerifluus and Polyporus semisupinus, as found in Murrill's work.

350. Polyporus mollis.—Not mollis. It may be galactinus, as some one has endorsed, but that is quite doubtful.

351. Polyporus caesius.—Appears correct to me.

352. Polyporus fragilis.—No specimen preserved.

353. Polyporus tephroleucus.—No specimen preserved.

354. Polyporus alutaceus.—The specimen mounted is Fomes connatus. In the original wrapper I find a piece of a specimen which is probably correct Polyporus alutaceus, but is an entirely different plant from the one that is mounted to represent this species. Polyporus alutaceus appears usually as Polyporus guttulatus in American works.

355. *Polyporus fimbriporus.*—The specimen is quite small, but is I believe Polyporus fragilis as I found it in Sweden. It is a white plant that turns red in drying, (cfr. Letter 43 under Weir).

356. Polyporus pubescens.—No specimen preserved.

357. Polyporus fumosus.—Misdetermination for Fomes annosus.

358. *Polyporus undulatus.*—No specimen preserved.

359. *Polyporus isabellinus.*—No specimen preserved.

360. *Polyporus nigro purpurascens.*—Specimen quite poor, but it appears to me to be a Polyporus dichrous as Fries and Berkeley both declare it to be. It is thinner than the next, however, which I do not question is P. dichrous.

361. Polyporus amorphus.—The specimen and record both are based on Polyporus dichrous. Polyporus amorphus, common in Europe, occurs with us very rarely east of the Mississippi. The specimen is typical of the common Polyporus dichrous.

362. Polyporus adustus.—No specimen preserved.

363. Polyporus crispus.—No specimen preserved.

364. Polyporus ulmarius.—Misdetermination. It appears to be a thick specimen of Polyporus gilvus, at any rate has no relation to ulmarius.

365. Polyporus suaveolens.—Specimens much eaten, but no doubt correct as Trametes.

366. Polyporus populinus.—This, in the sense of Fries, is I consider unknown although the name is applied by Bresadola (and those who copy him) to Fomes connatus. The plant of Schweinitz, however, is not Fomes connatus, but a species of Trametes which I have found, as Schweinitz did, on apple wood and which Berkeley named Trametes malicola. It is not known to occur in Europe, but is a characteristic species of America which was not included in Murrill's work. Murrill refers the name as a doubtful synonym to galactinus, which was a very bad guess.

367. *Polyporus unicolor.*—The specimens preserved are now called Polyporus obtusus. This has been known for years, but as the specimens do not accord with Schweinitz' description they were supposed to be an error. (cfr. No. 343.) They are correct, however, as parts still remain in the original wrapper.

368. *Polyporus cervinus.*—No specimen preserved. Something that Schweinitz found only once, and impossible to suggest its identity from description alone. There is a little specimen at Upsala which Bresadola takes in the sense of Polystictus biformis, but which is very doubtful to me. (cfr. No. 384 and also Myc. Notes, page 422.) This common plant is probably not the one that Schweinitz found "only once."

369. Polyporus serialis.—No specimen preserved.

370. *Polyporus pilotae.*—We have been able to prove only very recently that this is Polyporus croceus of Europe. (Cfr. Note 4, Letter 29.) Berkeley called it Polyporus hypococcineus, as he acknowledges.

371. *Polyporus pallido-cervinus.*—The little frustule appears to be Polyporus rutilans.

Section Coriacei (which is called Polystictus now).

372. Polyporus hirsutus.—Specimen correct.

373. Polyporus *hirsutulus.*—Specimen correct, but I hold it only as a form of versicolor.

374. Polyporus velutinus.—The specimen is P. hirsutus.

375. *Polyporus nigromarginatus.*—This name, which has been used as a

cheap juggle for Polystictus hirsutus, is a misdetermination of Polystictus hirsutus. Schweinitz usually so referred it, excepting one collection, which had a new (dark) growth on margin and which he did not recognize. How his mistake in one determination should invalidate the correct name under which he usually knew it, only name jugglery can explain.

376. Polyporus zonatus.—The very poor specimen can not be definitely referred. It is not probable that it is Polyporus zonatus, however.

377. Polyporus versicolor.—Specimen correct.

378. Polyporus stereoides is a misdetermination for Polystictus pergamenus.

379. Polyporus radiatus.—Misdetermination for Polystictus versicolor, to which it has not the most remote resemblance.

380. Polyporus pallescens.—Specimen too poor for opinion, but not correct.

381. Polyporus abietinus.—Misdetermination of Polystictus pergamenus. This, however, is a very unusual, velutinate specimen.

382. *Polyporus virgineus*.—Specimen is same as Polystictus conchifer with no "conch" developed. I am unable to see any resemblance whatever between the specimen and the figure Schweinitz gave.

383. *Polyporus conchifer*.—Specimen correct. A well known, common species, and endemic as far as known.

384. *Polyporus Symphyton*.—No specimen preserved. The description indicates that it was Polystictus biformis, a common, American species, not otherwise accounted for in Schweinitz' records.

385. *Polyporus decipiens*.—No specimen preserved.

386. *Polyporus parvulus*.—This is Polystictus abietinus.

387. *Polyporus scutellatus*, correct as Fomes.

Section "Biennes."

388. Polyporus sanguineus.—No specimen preserved.

389. Polyporus cinnabarinus.—Specimen correct.

390. Polyporus fraxineus.—Misdetermination for Fomes conchatus.

391. *Polyporus aesculi* (originally as Boletus aesculi flavae).—The specimen (which is Daedalea ambigua) disagrees with Schweinitz' description in every particular. It should be held as the "type" of the inaccurate work that was done in arranging and labeling the specimens rather than a "type" of Schweinitz.

392. Polyporus resinosus.—No specimen preserved.

393. Polyporus Benzoinus.—Misdetermination for Polyporus cuticularis.

394. Polyporus odoratus.—This is for me a trametes form of Lenzites saepiaria, which Fries illustrates (Icon. t. 191) as Trametes protracta. It is not Trametes odorata, a species of Europe that is not known to occur in America.

395. Polyporus nidulans.—Correct, but a synonym for Polyporus rutilans.

396. Polyporus cuticularis.—The specimen is Fomes conchatus, but probably a transposition of specimens for 393 (q. v.).

Polyporus brunneus.—This is found in a capsule and not included in Schweinitz' list nor mounted now in herbarium. It is Polyporus radiatus. I can see no resemblance to "croceus Fr." or "cupreus Berk.," as referred by Berkeley.

397. Polyporus rutilans.—No specimen preserved.

398. *Polyporus gilvus.*—Correct and the "type" of the common species.

Section Perennes (now Fomes).

399. Polyporus marginatus.—Correct, but a synonym for the next (Fomes pinicola). Some priorists use the name marginatus now, but generally make it more farcical by writing "Cooke" after it.

400. Polyporus pinicola.—Misdetermination for Fomes leucophaeus.

401. Polyporus annosus.—Misdetermination surely. I find no spores, but do not question (from color of context) it is a young specimen of Fomes rimosus. I would refer it to Fomes robustus if that grew in Schweinitz' region.

402. Polyporus dryadeus.—Misdetermination for Polyporus gilvus.

403. Polyporus fomentarius.—Misdetermination for Fomes applanatus (American form leucophaeus). No wonder Schweinitz records Fomes "fomentarius" as "vulgaris."

404. Polyporus nigricans.—Misdetermination for Fomes marmoratus of the tropics. Schweinitz' species is from Florida.

405. Polyporus igniarius.—Misdetermination for Fomes rimosus.

406. Polyporus Ribis.—Correct as Fomes.

407. Polyporus conchatus.—Possibly correct, but I doubt it. Not ligneous enough. More probably a thick species of Polyporus gilvus.

408. Polyporus microporus.—This is Polystictus byrsinus of Montagne. The specimen is from the South.

409. *Polyporus lobatus.*—This is based on a "contortion" of a plant since named Polyporus reniformis by Morgan, in its normal form. The recent use of the name lobatus for the plant under these known conditions is about as crooked a proceeding as the specimen on which it is based.

410. Polyporus *Pini-canadensis.*—No specimen mounted. I believe there is one in original wrapper, but I neglected to look it up.

PORIAS.

Schweinitz lists about sixty species of Poria of which eighteen were claimed to be new species and the remainder referred to European species. I question if there are any, certainly few, American Porias correctly referred to European species in this or any other paper.

American traditions and determinations. In Europe there is great difficulty with the genus Poria to this day, and in America the lists are not worth citing. Of the forty species Schweinitz referred to European species I believe most all are incorrect, and as they have little bearing on even the history of the subject, I shall not go into them in detail excepting as to the "new species."

413. *Poria favescens.*—This is the resupinate part of the plant now known as Trametes sepium. Otto Kuntze would probably call it Trametes favescens (Schw.) McGinty.

418. *Poria spissa.*—Fries described this from specimens sent by Schweinitz, and it has also been named by Montagne and Peck. It is a species that changes color so markedly in drying that the description that has been made of it from dried material is not suggestive even of the plant as it grows in the woods.

422.—*Poria Juglandina.*—The type is not very ample and I do not recognize it, and it may never be recognized. Evidently it has no resemblance to Poria spissa however (which Fries states). I judge it is related to ferruginosa, viticola, etc. Schweinitz observes it as "durissima, immersa, compressa, difformis," if that described anything.

423. *Poria viticola.*—This is a species named by Fries from specimens sent by Schweinitz. The type is hence at Upsala, but it is same as specimen so preserved in Schweinitz' herbarium. It is a species very close to Poria contigua.

426. *Poria pulchella.*—This is the yellow (trametes) Poria that passes as Poria vulgaris in American traditions. It is only yellow when protected from light, but fades out to white when the light reaches it. Hence the white condition which is most commonly met was not recognized by Schweinitz as the same thing and was by him called Poria vulgaris. I do not know the plant as a European species.

432. *Poria vitellinus.*—The specimen is very unsatisfactory, but I do not question from the description that Morgan has correctly interpreted it. It is a rare yellow species with large pores and loose subiculum. I have only collected it once.

435. *Poria xantholoma.*—Specimen does not tell much. It is described as thin, with large pores and fimbriate margin. It appears closely adherent. The plant that Morgan referred (incorrectly) to Poria xantholoma, Schweinitz evidently referred (incorrectly) to Poria obducens of Europe.

436. *Poria rhododendri.*—The specimen so labeled now is probably resupinate Trametes sepium, but surely not what Schweinitz described. I believe I know the species as Schweinitz has described it in detail and I think characteristically, but it is not the specimen now in his herbarium nor has it any "affinity to Poria contigua."

437. *Poria Sassafras.*—The description and the scanty specimen do not accord, as noted by Berkeley, and I question if it will ever be known. It seems to be a white species with large pores.

438. *Poria superficialis.*—Fries claims it is same as Poria viticola, which I believe is also true as to the specimen at Upsala. Berkeley says it is the same as Poria nigro-purpureus, and while I do not know what the latter really is I do not believe they are the same on comparison. For me the most satisfactory conclusion is to consider Poria superficialis as a synonym for Poria viticola on the basis of specimen sent Fries.

439. *Poria nigropurpurea.*—I do not recognize either the description or the little piece of type in Schweinitz' herbarium as anything that I know.

440. *Poria cinerea.*—No type preserved now.

441. *Poria Coryae.*—This is one of those nondescript growths which vary. I think it is what is known now as Poria subacida.

442. *Poria papyracea.*—Very thin, white, with large, round pores, about what Peck calls "Trametes serpens." Berkeley compares it to Polyporus Stephensii, which Fries refers to "Trametes serpens." Notwithstanding, I think Poria papyracea will prove in time a good species.

456. *Poria tenuis.*—This is a thin, white species with medium, firm, round pores, otherwise not recognized by me.

467. *Poria decolorans.*—Specimen very scanty, but is probably Poria sanguinolenta from its color change and color now.

468. *Poria candidissima.*—A thin, soft, white species with large pores and loosely adherent subiculum. I think I have collected it.

469. *Poria interna.*—No specimen found.

472. *Poria lilacina.*—No specimen found.

POROTHELIUM.

It is my conviction that there is but one species, Porothelium fimbriatum, in Europe and United States, hence all three of Schweinitz' species (Porothelium subtile, fimbriatum and *Pezizoides*) for me fall into one (P. fimbriatum). There is no specimen of his "new species" Porothelium pezizoides" in his herbarium, but I have seen authentic material in Europe and consider it only a young condition of P. fimbriatum.

DAEDALEA.

Under this head Schweinitz classed what are now called Daedalea and Lenzites.

476. Daedalea biennis.—Our American plant takes usually an abortive form called Polyporus distortus. That it is only a geographical form of Polyporus rufescens, or Daedalea biennis a synonym, there is no doubt in my mind. There is no specimen in Schweinitz' collection.

477. Daedalea quercina.—Correct without question, although there is no specimen in the collection.

478. Dadedalea betulina.—Correct as Lenzites.

479. Daedalea saepiaria.—Correct as Lenzites.

480. Daedalea abietina and

481. Daedalea trabea and

482. Daedalea confragosa and

483. Daedalea Pini are all four misdeterminations for Lenzites saepiaria.

484. Daedalea unicolor.—Correct.

485. Daedalea variegata, a form at best, of Lenzites betulina.

486. Daedalea gibbosa.—Specimen so eaten it can not be referred, excepting that it has no resemblance to Daedalea gibbosa of Europe, which is not known to occur in the United States.

487. Daedalea albida and

488. Daedalea discolor and

489. Daedalea rubescens are all three Daedalea confragosa.

490. Daedalea angustata and

492. *Daedalea zonata* are the thin, zonate, Lenzitoid, Southern form of Daedalea confragosa, better known as Lenzites corrugata.

491. Daedalea aurea.—This has a soft, pubescent pileus, but otherwise appears to be Lenzites saepiaria as referred by Berkeley. I think it is an unusual form.

493. *Daedalea subtomentosa.*—No specimen. Probably same as recently called Daedalea juniperinus.

494. *Daedalea Meruloides.*—Probably Paxillus olivaceus (cfr. No. 300).

MERULIUS.

495. Merulius tremellosus.—Correct. Why Schweinitz should have referred the very similar species Merulius incarnatus (cfr. No. 290) to a

different genus (Cantharellus) is a mystery to me. Merulius tremellosus and Merulius incarnatus are so similar that they were confused as one species by Berkeley, who only knew them from dried specimens.

496. *Merulius strigoso-zonatus.*—Correct as Phlebia (cfr. Letter No. 46, where a detailed history of this much-named plant has been given).

497. Merulius rufus and

498. Merulius serpens.

I think that in Sweden both of these plants, in the sense of Fries, are one species, and Schweinitz' 497 seems to be correct. His 498 has no affinity.

499. Merulius crispatus.—Misdetermination for Merulius Corium.

500. *Merulius pallens*=Merulius Corium.

501. Merulius fugax.—No specimen preserved.

502. Merulius lacrymans.—Specimen correct.

503. *Merulius brassicaefolius.*—No specimen, but probably correctly interpreted by Berkeley (cfr. 506), in which case it is same plant (really a thin form of Merulius lacrymans) called pulverulentus by Fries.

504. Merulius vastator and

505. Merulius molluscus and

507. Merulius Porinoides.—I would not wish to pass on the specimens that represent these three, excepting I am sure they are *all wrong.*

506. Merulius himantioides.—This is referred by Berkeley to No. 503 (q. v.) and is the same as Ravenel has distributed under the name Merulius brassicaefolius. In Europe there is more than one opinion as to the identity of Fries' Merulius himantioides (Cfr. Myc. Notes, p. 454), but according to my conclusions the true species as I believe I have found it at Upsala, has no resemblance to this.

FISTULINA.

This genus is now classed in Polyporei, though Schweinitz listed it in Hydnei.

508. Fistulina hepatica.—Correct.

509. *Fistulina radicata.*—There exists no such species, the "type specimen" being a distortion of something, and it is impossible from an examination to say what it would be if it were anything.

"SPHAERIA."

1167. *Sphaeria pocula.*—This is a unique, little species of Polyporus (cfr. Myc. Notes, Pol. Series, p. 44). Schweinitz' specimens so labeled as above are the undoubted plant. Recently the claim has been published that Schweinitz first referred the plant to Peziza digitatis, afterwards changed to Cyphella pendula, and they would even change the name of Polyporus poculus on such vagaries. Schweinitz preserved the species in his herbarium as Sphaeria pocula, so sent it to Europe, so illustrated it, and there is not a shadow of evidence in his herbarium that Schweinitz ever called it Cyphella pendula or anything else but Sphaeria pocula. When men, under the influence of Kuntzeism, propose changes of plant names on such "evidence" they should not go into print with the claim that such work was done after an investigation.

LETTER No. 51.

Report on specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority," in event they desire to use the same. All specimens are acknowledged by private letter as soon as they come into my hands. Foreign correspondents can send specimens to my English address, and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
No. 224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
No. 95 Cole Park Road,
Twickenham, England.

Cincinnati, March, 1914.

BOURDOT, H., France:

An interesting and critical collection, all as named by Rev. Bourdot. Tremellodon gelatinosum.—Exidia gemmatum.—Exidia recisa.—Exidia glandulosa. — Exidia Thuretiana. — Ditangium rubellum — Helicobasidium purpureum.—Sebacina peritricha.—Protohydnum lividum.

Corticium portentosum.—Corticium rhizophoreum.—Corticium laeve.—Corticium polygonoides.—Corticium Galzini.—Corticium bisporum.—Corticium roseum. — Corticium sulphureum. — Corticium sphaerosporum. — Corticium submutabile.—Corticium lacteum.—Corticium Rickii.—Corticium confluens.—Corticium anthrocophilum —Corticium roseo-cremeum.—Corticium seriale.—Corticium lividum.—Corticium amiathinum.—Corticium microsporum.—Corticium expallens.—Corticium confine.—Corticium rubropallens.—Corticium flavo-croceum.—Corticium ochraceo-fulvum.—Corticium fastidiosum.—Odontia farinacea.—Grandinia alnicola.—Corticium croceum. —Corticium serum.—Corticeum niveo-cremeum.—Peniophora coroniferum. —Corticium botryosum.—Corticium flavescens.—Corticium atrovirens.—Corticium subcoronatum.—Corticium avellaneum.—Corticium aurora.—Corticium byrsinum.—Corticium discolor.—Corticium cebennense.—Corticium subcostatum.—Corticium coronatum.

BRESADOLA, REV. G., Tirol:

Hydnum acre "compared with the type. It is same as Hydnum mirabile."

Stereum diaphanum. Rev. Bresadola calls my attention to the erroneous statement in my recent pamphlet, where this species is stated to have "cystidia none."

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

BURNHAM, STEWART H., New York:

Aleurodiscus Oakesii. (Compared with type by Miss Wakefield.) On Ostrea.

Aleurodiscus (species unknown to me). On Hemlock twigs.

CRADWICK, WM., Jamaica:

Geaster javanicus. (viz., the dark, tropical form of Geaster velutinus =Geaster Lloydii.)

GUNDERSON, MRS. MINNIE, Massachusetts:

Polystictus pergamenus.—Polyporus dichrous.—Polyporus albellus (discolored).—Poria contigua.

Poria versipora. The two Porias are to an extent doubtful, as this section has never been critically worked out.

HAGLUND, ERIK, Sweden:

A nice lot of specimens, including the very rare Hydnum mirabile and others, are of much interest. They are most all listed as labeled when received.

Lenzites betulina.—Polyporus brumalis.—Polyporus caesius.—Trametes cervina.—Poria sinuosa.—Poria mollusca.—Hydnum (unnamed), (See Note 153).—Hydnum nigrum.—Hydnum melaleucum.—Geoglossum fallax.—Helvella albipes.—Otidea leporina.—Otidea onitica.—Hydnum caeruleum.—Hydnum ferrugineum.—Hydnum scrobiculatum.—Hydnum mirabile (most rare. See Note 154).

LEEUWEN, DR. VAN, Java:

Cladoderris infundibuliformis.—Cladoderris elegans.—Schizophyllum commune. — Polystictus occidentalis. — Polystictus xanthopus. — Lentinus Sajor Caju.—Polystictus sanguineus.—Polyporus rugulosus.—Lentinus strigosus.

Scleroderma luteum. Peridium globose, 2-4 cm. in diameter, smooth, bright yellow tissue, the surface sometimes brownish. Rugulose in drying. Gleba mass lead color, with no yellow flocci. Spores small 5-6 mic., very slightly rough.

This species, characterized by the bright yellow context of the peridium, is of an Eastern distribution. I have previously received it from Dr. Chas. Bernard, Java (cfr. Letter No. 25), and there is a collection at Kew from Singapore. It differs from the European species not only in its bright yellow peridium tissue, but also in the smaller, smoother spores.

Stereum glabrescens. — Polyporus antilopus. — Lentinus connatus (=Lentinus javanicus Lev.).—Fomes (Ganodermus) leucophaeus.—Polyporus grammocephalus.—Hirneola auricula Judae.—Polyporus subvirgatus. Hexagona tenuis.—Polyporus (Ganodermus) cochlear.—Trametes acuta.—Polyporus Emerici.—Fomes rimosus.—Polyporus xanthopus.—Fomes senex. —Polystictus occidentalis.—Hexagona plumbea.—Polystictus luteus.—Trametes Persoonii.

Lentinus maculatus. This is a very rare species, and this specimen is the first I have ever gotten. It is strongly distinct, with a glabrous pileus, marked with innate, darker spots. Stem, glabrous. Gills rather distant. Only heretofore known from the scanty types at Kew.—Polyporus obovatus.

LIND, J., Denmark:

Polyporus hispidus.—Poria ferruginosa?

LOWE, MRS. F. E., Massachusetts:

Daedalea confragosa.—Trogia crispa.

Polystictus hirsutus. Bleached *white*, by exposure to cold, no doubt. Quite different appearance from the usual plant.—Daedalea confragosa, *typical*.

OVERHOLTS, L. O., Missouri:

Polyporus spumeus.

Polyporus. I am not sure, but think it a European species, for which I have not found a name. It is similar to Polyporus undosus, which is the only American name we have near it; but it is not undosus, I think, which is thinner and grows on pine.

PAUL, J. T., Australia:

Polystictus sanguineus.—Stereum vellereum.—Polyporus ochroleucus.

Polystictus hirsutus. This is a much thicker form than occurs in Europe.—Merulius (or Poria).—Irpex meruloides (as Hydnum). The teeth are too irregular to be included in Hydnum.

Polyporus (unnamed probably). Close to pelliculosus and spiculifer, but neither.—Stereum spiniferum (See Note 155).

PETCH, PROF. T., Ceylon:

Polyporus durus.—Polyporus gilvus.—Fomes lamaensis.—Polystictus luteo-olivaceus.—Polyporus ochroleucus.—Polystictus hirsutus.—Polyporus conchoides.—Polyporus vinosus.

Polyporus badius. Compared with the type, this has same context color, pores, and pore color and "structure." It is thicker, more strongly zoned (the type of badius is faintly zoned), and is intermediate between Polyporus badius and Trametes acuta, Lev.

Fomes rimosus.—Fomes (unnamed, I believe).—Polyporus Gaudichaudii.—Hexagona pulchella.—Trametes cervinus =Trametes mollis of European mycology, form with smaller pores.—Fomes caliginosus.

Trametes. Seems same to me as specimen at Kew, recently named Trametes similis by Bresadola from Java, but he has since referred that to venulosus Jungh., and from my notes at Leiden I can not reconcile it with the Junghuhn plant.

Polyporus.—Polystictus.—Trametes cingulatus.

PLITT, C. C., Maryland:

Polyporus gilvus.—Polyporus resinosus.—Daedalea confragosa.

RICK, REV. J., Brazil:

Hydnum pulcherrimum.—Polystictus rigens.—Polyporus Rostkovii. Scaleless form of Polyporus squamosus.—Polyporus dictyopus.—Polyporus depressus.—Polyporus melanoporus.—Lycoperdon Aetnensis.—Polystictus versatilis.—Acetabula (sp.).—Polyporus virgatus (See Note 156).—Xylaria plebeja.—Xylaria involuta.—Xylaria grammica.—Fomes?—Polystictus?

WILDER, MRS. CHARLOTTE, California:

Fomes pinicola.

Polystictus zonatus. This agrees exactly with the Swedish plant, and in its type color is a rare plant in the United States.

Fomes applanatus.—Boletus.—Hydnum auriscalpium.—Xylaria hypoxylon.—Peziza.—Tylostoma campestris.—Lycoperdon pratense.

YASUDA, PROF. A., Japan:

Cudonia circinans.

Irpex Tanakai. For me only a form of Irpex lacteus, with spines arranged lamelliform.

Polyporus sulphureus.—Mitremyces Ravenelii.—Fomes annosus?—Aleurodiscus amorphus.—Corticium evolvens.

Stereum Harmandi. These specimens are cut into narrow segments, not entire as the type collection. It is surely a form, however. It was recently described from Japan (cfr. Stipitate Stereums, p. 22).

Lycoperdon.—Polystictus.—Lenzites Earlei.—Hydnum aurantiacum.—Thelephora palmata.—Polyporus lacteus.—Aleurina (sp.).—Hypoxylon coccineum (form).—Hydnum zonatum?—Hydnum scabrosum?

NOTE 153.—Erik Haglund sends a **Hydnum** which he has labeled "Hydnum fragrans ad. int." It is new to me and, I think, unpublished.

NOTE 154.—**Hydnum mirabile.** I am most pleased to get this most rare species from Erik Haglund, and I believe it is the only Swedish specimen known. Van Post collected it fifty years ago, and Fries named and illustrated it, but did not preserve any specimen in his collection. Mr. Haglund is the first mycologist to find it in recent years.

We have in the United States (not rare) a curious species that Peck referred to Hydnum mirabile on Fries' figure, and I have always had a suspicion that Peck was right. It has since been supposed that it is the same as Quelet called Hydnum acre, and that Atkinson very recently called Hydnum cristatum. My impression now, after seeing Mr. Haglund's specimen, is that it is not the same, but I shall want to compare them with our American specimens.

NOTE 155.—**Stereum spiniferum.** Pileus thin, conchoid, with brown, scabrous pubescence, often resupinate, with a reflexed margin. Context thin, with colored hyphae. Hymenium purplish brown, glaucous to the eye. Spores not found. Cystidia (Fig. 565) hyaline, with spiny processes, numerous, densely covering the hymenium.

Fig 565.

This is a frequent species in Australia which I have not found named in the museums. The cystidia are of the type called Dendrophysen by the Germans, hence I suppose it will become a "new genus" in time. It seems to be common in Australia. It is quite similar to Stereum albobadium of the United States, and Australian collections at Kew were so referred. I have received specimens from Miss E. J. Turner, Rev. James Wilson, Edmund Jarvis, Albert Green, and J. T. Paul, all from Australia.

NOTE 156.—**Polyporus virgatus,** received from Rev. J. Rick, Brazil. Compared with the type at Kew. These specimens have an indication of a black stem, and the plant is close to Polyporus varius. It should go in the section Melanoporus instead of Lentus, where it was placed in my Synopsis.

NOTE 157.—**Pseudocolus Archeri.** We have from Chas. C. Brittlebank a characteristic figure of this Australian species, that was imperfectly known at the time we wrote our Phalloid pamphlet. We shall reproduce the figure the next time we are publishing Phalloid figures. Mr. Brittlebank's drawing fully carries out our remarks in Note 86. It is evident Berkeley had a misconception of the plant, and that his figure, which we reproduced in our pamphlet (Fig. 48), is inaccurate in its essential features. The arms are united at the top, and the plant is a typical Pseudocolus.

NOTE 158.—**Cordyceps entomorrhiza.** In reference to Note 94, Mr. Ramsbottom has kindly called my attention to my statement that "Tulasne was too keen to confuse Cordyceps entomorrhiza and Cordyceps gracilis," for it seems from his Icones that he did confuse them. His figure 12, which he refers to Cordyceps entomorrhiza (in his sense, which is gracilis for me), is a better figure of Cordyceps entomorrhiza than his figure 11, which is his type figure of Cordyceps cinerea (viz., entomorrhiza true). I am sure Tulasne has the two species well distinguished in his herbarium, but I think he has his figure 12 confused.

LETTER No. 52.

THE NAMED AND MISNAMED SPECIMENS OF THE EXSICCATAE.

By C. G. Lloyd.

(Cincinnati, June, 1914.)

This pamphlet might be titled with more accuracy "The named and misnamed specimens of the exsiccatae in the British Museum," for it records only those I have noted in this museum. There are additional exsiccatae in other museums, but nowhere else have I found as many exsiccatae and as conveniently arranged for taking off a list. Most of the important exsiccatae are to be found in the British Museum. Very little mycology is ever learned excepting from specimens, and the various exsiccatae are a practical means, for all of the important species of Europe and America are in these exsiccatae and a fair number of those of the tropics. Unfortunately the value of these exsiccatae specimens is to a large measure invalidated by the fact that so large a proportion are misnamed. These misnamed are of three kinds.

1st. We have the synonyms, viz.; names given to species that already have names. We feel quite tolerant of synonyms, for most of them originate in good faith. A local worker with limited opportunity finds a fungus he is unable to determine. He does the simplest thing possible. He announces that he has discovered a "new species" and gives it a name. In about one case out of four is it true, and in the other three cases his name in time becomes a synonym.

2nd. We have the misdetermined specimens of the exsiccatae. It is unfortunately true that men publish exsiccatae to give information to others and succeed largely in giving misinformation. So many specimens of even the common species are mislabeled in the exsiccatae that as a whole no dependence whatever can be placed on them.

3rd. Juggled names. A name juggler is one who takes a plant with a well-known and well-established name and changes it on some old, vague alleged synonym, in many cases not true, and of no importance if it is true. There is some excuse (lack of knowledge) for the makers of synonyms and the distributors of misdetermined specimens, but there is not even this excuse for a name-juggler. The process of looking up dates of old, alleged synonyms, and guessing at the identity of the vague records of the past is of little importance even historically. But to substitute for an unquestioned and settled name an alleged, doubtful synonym only leads to confusion and has not even the merit of originality, for name-jugglers have been the bane of mycology from the start.

There are two kinds of jugglers. The generic juggler who discovers every section to be a "new genus" and gives it a name, and those who juggle the specific name.

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The makers of exsiccatae have paid but little attention to "generic" jugglers. Bartholomew has used some of Murrill's juggles, and Rabenhorst a few of Karsten's juggles. We do not hold generic juggling to be of enough value to warrant citation even as synonyms. Specific juggling does the most harm. Thus there is hardly a museum where Fomes pinicola is not found in three covers, all exactly the same plant, but passing under three different names. Such work is only confusion.

In most museums the specimens are arranged in covers as labeled, for those who lay them in are not supposed to be informed on their classification and have nothing to go by excepting the label. The result is that many species are found in several different covers, according as the names are synonyms or juggles, and also many specimens which are misdetermined are placed in covers where they do not belong. The British Museum has recently rearranged the specimens according to my notes, and it is the only museum that I recall where the specimens are arranged and labeled with enough accuracy so that they are of any value in determination of specimens.

Authentic Friesian specimens are rare in the museums. Even at Upsala there is a very imperfect set. More of them are found at Kew than in any other museum, for Fries sent to Berkeley more specimens than to any other correspondent. A number of these Berkeley divided, and deposited part in the British Museum. They are marked "Fries misit" in this list.

Blytt sold his herbarium to the British Museum, and a large part of his specimens are endorsed in Blytt's writing "Fries in litt.," as recorded in this list. Most of them are undoubtedly correct, but some are hard to reconcile with Fries' writings. Whether this is due to some error on the part of Blytt, or of Fries, or whether the usual accepted interpretation of Fries' writing is a mistake, I am unable to say. I record, however, in detail where these specimens do not coincide with my understanding of Fries' writings. The abbreviations that we use for the various exsiccatae are not explained in full, but will be recognized by those familiar with the names of the usual exsiccatae. Where the same author has issued exsiccatae under more than one title, or series, as "Saccardo Ital." and "Saccardo Ven.," we do not always specify the series, simply cite "Sacc." and the number.

In this list the species are entered under the correct generic name (Polyporus, Fomes, Polystictus, etc.) to my views. In the exsiccatae cited they are not always so listed generically, but I have not always noted these unimportant discrepancies. Thus all Fomes, Polystictus, and Poria were at one time called Polyporus, and it is immaterial and should cause no confusion if a given exsiccatae was labeled Fomes connatus or Polyporus connatus. The method followed in Smith's British Basidiomycetes (and some other English books) of writing Karsten's and Cooke's names after all (21) (alleged) species of Fomes (not to mention hundreds of other cases), because the men who named them called them Polyporus (or in very old times Boletus) is in my opinion a piece of misrepresentation of which the author possibly did not realize the extent.

Ravenel's fascicle numbers are not noted on the British Museum distributed sets, and I have not looked them up, but cite only the specimen numbers, which by Ravenel's cumbersome method was repeated in each

fascicle. The anonymous exsiccatae recently distributed from Vienna are cited only as (Wien).

All exsiccatae are not found in the British Museum. I think all of Roumeguère are not there, and Roumeguère had the poorest specimens and the worst misnamed of any, which is saying much. As I note other exsiccatae in future I shall make a list of additions, with a view to publication.

The specimens that are correctly named are printed in large type (pica). The misnamed specimens, in smaller type (nonpareil). Those that are to me more or less doubtful, in intermediate type (brevier).

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abietinus Polystictus. Brinkman, 139, 192—Desm. 662—Fung. Col. 303—Herb. Farlow—Jaczewski, 234—Karsten, 121—Krieger, 1205—Linhart, 445—N. A. F. 8—Rab. 2637, 4449—Rav. 422, Fasc. 1, No. 12—Sacc. 605, 1409—Sydow, 652, 713—de Thüm. 6, 706—Waghorn, 14, 40, 278—(Wien) 316.

Misnamed.

abietinus var. coriaceus Polyporus.

de Thüm. 1207.

Not from the specimen (which is quite poor) but from the host (Populus). I think this must be Polystictus pergamenus, a plant that occurs rarely in Southern Europe on *frondose* wood.

Compare asserculorum, velutinus, versicolor, violaceum.

Abietis Trametes. Fung. Col. 1205—N. A. F. 2507, 2730.

A thin form of Trametes pini.

Misnamed.

adspersus, Polyporus.

Linhart 55. =Fomes laccatus. (synonym.)

Note I do not find spores, but from context color and surface I have no doubt it is as above.

adustus, Polyporus. Aust. Hung. 757—Bartholomew, 2207, 2801, (except as to juggle). Desm. 159, 313—Fuck. 1390—Fung. Col. 206—Karsten, 116—Krieger, 1319—N. A. F. 6—Rab. 212, 412, 2729, 4148—Rav. 421—Romell, 8—Sacc. Ital. 4, 1202—Sacc. Ven. 11, 12—Sydow, 307, 2902—de Thüm. 617—Waghouse,—(Wien) 3083, 3086.

Compare carpineus.

Misnamed.

Aesculi Daedalea.

Bartholomew, 2829=Daedalea ambigua.

A juggle only and as inaccurate as it is absurd. It was based on a misplacement of specimen in Schweinitz' herbarium, and disagrees with Schweinitz' description as to every character.

Misnamed.

affinis, Polystictus.

(Wien) 1421=Polystictus flabelliformis (misdetermination).

Polystictus affinis is smooth; Polystictus flabelliformis has *pubescent zones*.

Doubtful to me.

albidus, Polyporus. Brinkman, 141.

albolenteus, Polyporus. Bartholomew, 1637.

Misnamed.

albus, Polyporus.
Oud. 224, (doubtful=caesius). (misdetermination.)
Sydow, 1713=Polystictus velutinus. (misdetermination.)

albus, Ptychogaster. Fuckel, 1882—Rab. 800—Sydow, 919.

Misnamed.

alligatus, Polyporus.
Sydow, 1714=Polyporus fumosus.
The identity of alligatus is unknown.

ambigua, Daedalea. Bartholomew, 2518—Fung. Col. 1112—N. A. F. 1593.

I congratulate Bartholomew for not using once at least the juggled name "Aesculi" for the plant, which name is so absurd that it is a joke.

Compare Aesculi.

amorphus, Polyporus. Brinkman, 140—Desm. 189—Fuck. 1372—Jaczewski, 179—Karsten, 117—Krieger, 1206—Oud. 225—Rab. 11, 2636, 3326—Syd. 712, 752.

"Fries in litt."

"Fries misit." (Brit. Museum).

Rav. Herb. (A rare find in America).

Compare irregularis.

Misnamed.

Anax, Polyporus.
Kellerman, 170=Polyporus frondosus! (misdetermination).
N. A. F. 1595=Polyporus frondosus (?) (misdetermination).
Polyporus Anax was Berkeley's mss. name for Polyporus Berkeleyi.
Neither of the above specimens is Polyporus Berkeleyi, which has echinulate spores. The Kellerman specimen is surely Polyporus frondosus, the Ellis specimen is probably frondosus, but possibly it may be Polyporus giganteus.

Misnamed.

angulatus, Polyporus.
de Thumen, 309=Polystictus zonatus (synonym).

annosus, Fomes, Brinkman, 147—Briosi & Cavara, 324—Krieger, 121—Krieg. Schäd, 120—Rab. 405—Romell, 13—Sacc. Ital. 407—Sydow, 504, 1108, 3107—de Thüm. 106.

"Fries misit." Brit Mus.

"Fries in litt." Brit. Mus.

Compare cryptarum, marginatus, radiciperda, resinosus.

applanatus, Fomes. Aust. Hung. 3541—Erb. Ital. 540—**Fuck.** 1388—Jaczewski, 125—Krieger, 1207—N. A. F. 801‡—Rab. 1603*, 3736‡—Sacc. 104*—Sydow, 210, 302*, 3329*, 3801—de Thüm. 715, 1204, 1804‡—Waghorn, 126‡—(Wien) 940.

Those marked ‡ are Fomes leucophaeus with **pale crust.** Those marked * are Fomes vegetus with interposed layers of **context.** Both are forms at best of Fomes applanatus.

Compare fulvus, Linhartii.

arcularius, Polyporus. N. A. F. 2nd, 1690—Rav. 209—Shear, 1406—Sydow, 4201.*

* (Not typical. cfr. Note under Polyporus brumalis).

Australia, Bailey!!

Ceylon, Green.

Africa, Zenker, 1370a.

Compare brumalis, favoloides.

Misnamed.

asserculorum, (Persoon in litt.) Daedalea.
Mongeot, 491=Lenzites abietinus.
This seems to be a mss. name only of Persoon's.

Misnamed.

Auberianus, Polyporus.
Gaillard, 197, Caracas=Fomes lignosus (synonym).
Ule, 746, Brazil=Fomes lignosus (synonym).
Wray, 1716=Fomes lignosus (synonym).
Wright, 244, Cuba=Fomes lignosus (synonym).

Misnamed.

aurea, Daedalea.
Rav. No. 14=Daedalea unicolor (form).

aurantiaca, Poria. Compare spongiosus as var. of Polyporus nidulans.

aurantiacus, Trametes. Compare fibrillosa.

Misnamed.

barbatulus, Polyporus.
N. A. F. 2012=Polystictus pinsitus (synonym).
Rab. 3327=Polystictus pinsitus (synonym).
Rav. 212=Polystictus pinsitus (synonym).
Rav. No. 19=Polystictus pinsitus (synonym).

Misnamed.

Beatiei, Polyporus.
Rab. 3427=Polyporus Berkeleyi (synonym).

benzoinus, Polyporus. Krieger, 525—de Thüm. 1103.
"Fries misit" (as Trametes) British Museum.

Compare fuliginosus, morosus, resinosus.

Berkeleyi, Polyporus. Bartholomew, 2432. (Correct excepting as to the juggle of the generic name).—Ellis, 706.

Compare Anax, Beatiei.

betulinus, Polyporus. Aust. Hung. 3147—Brinkman, 196—Erb. Ital. 229—Fuckel, 1387—Fung. Col. 905—Jaczewski, 76—Karsten, 8—Krieger, 907—N. A. F. 1691—Oud. 228—Rab. 1510—Romell, 10—Sacc. Ital. 604—Sydow, 627—de Thuem. 313, 906.

Misnamed.

biennis, Polyporus.
Rab. 3033=Polyporus rufescens (synonym).
Sydow, 806=Polystictus tomentosus. Misdetermination. A bad mistake, for context colors are white in one species and brown in the other.

biformis Polystictus. Fung. Col. 913—N. A. F. 1596—Rab. 3428—Rav. No. 18—de Thüm. 2005, Siberia, (very ?). "Polyporus biformis Fr. vide Fries!!" in Rav. herb.

Compare chartaceus.

borealis, Polyporus. Karsten, 238—Rab. 1703 (doubtful; discolored if correct)—Romell, 115—Sydow, 51—de Thüm. 1403 (doubtful).

Misnamed.

Oud. 226 (appears to be caesius).
de Thüm. 1107 (appears to be spumeus).
(Note. de Thüm. 1403 and Rab. 1703 as Polyporus borealis are both doubtful to me.)

Misnamed.

Broomei, Polyporus.
Rab. 2004=Polyporus undatus (synonym).
Zopp & Sydow.=Polyporus undatus (synonym).

Misnamed.

brassicaefolius, Merulius.
Rav. No. 23=Merulius pulverulentus (synonym).

brasiliensis, Favolus. Plant Boliv. 1951.

brumalis, Polyporus. Brinkman, 197—Fung. Col. 1106—Fuckel, 1396—Japp, 97—Krieger, 1458—N. A. F. 914—Sydow, 1410.

"Fries in litt." Pores rather large, tending to arcularius.

Polyporus brumalis with small (favoloid shape) pores runs into Polyporus arcularius with large favoloid pores. The Blytt specimen "Fries in litt." has larger pores than usual for brumalis and tends towards arcularius.

Misnamed.

Karsten, 114=Polyporus arcularius (an intermediate specimen).
Rav. Herb. 4 collections=Polyporus arcularius (misdetermination).
Rav. No. 9=(typical arcularius).

Polyporus arcularius (which is a Favolus in reality) can be told from Polyporus brumalis by its large pores. It is widespread in the tropics, but I was under the impression that it only occurred in Southern Europe. Karsten 114, with its quite large pores, should, however, be referred to arcularius, although the pileus is smooth as in brumalis, and innate scaly in southern forms of arcularius. In reality it is a connecting specimen.

Misnamed.

bulbipes, Polystictus.
Ule, 45, Brazil = Polystictus luteo-nitens (misdetermination).

byrsinus, Polystictus. Compare crocatus, occidentalis.

caesius, Polyporus. Brinkman, 193—Fuckel, 2293—Karsten, 236—Krieger, 1913—Sydow, 2815.
"Fries in litt."
Compare albus, borealis.

carneus, Trametes. N. A. F. 916 (as Polyporus)—Rav. 14 (as Polyporus).

We take this in the sense of Berkeley, not of Nees. The Java plant under this name is only known from an indefinite picture. Originally it was probably the same plant as called now Polyporus rubidus, a frequent plant in Java, but little resemblance to above.

Misnamed.

carpineus, Polyporus.
Sydow, 1712 = Polyporus adustus (synonym).

Misnamed.

Cerasi, Polyporus.
de Thüm. 613.
Probably an error, there being no such species named. I cannot place it, but it is close to Polystictus zonatus.

cervinus, Trametes. Compare mollis serpens.

Misnamed.

chartaceus, Polystictus.
Fung. Col. 1011 = Polystictus biformis (synonym?).
N. A. F. 1703 = Polystictus biformis (synonym?).
Rav. 714 = Something resupinate, indeterminable.

Misnamed.

chilensis, Polyporus.
de Thüm. 2204 = Polyporus lucidus?

ciliaris, Polyporus. . Compare Tricholoma.

Misnamed.

chioneus, Polyporus.
Brinkman, 194 = Polyporus semipileatus.
Sydow, 4704. Specimen too poor to judge.
"Fries in litt." Specimen poor, but not same plant as in sense of Brinkman, 194, nor Fungus Kmet.

Misnamed.

cinerea, Daedalea.
Sydow, 2110 = Daedalea unicolor, thick form.

cinnabarinus, Polystictus. Balansa, Tonkin, 94‡—Erb. Ital. 770—Fung. Col. 205—Jack L. & S. 839—Karsten, 123*, 423*—Kellerman, 171—N. A. F. 502—Rab. 1210—Rav. No. 17, 419—Sacc. 410*, 1410*—de Thüm. 217*, 2007.

"Fries in litt."

"Ex herb. Fries."

Those marked * are Trametes. ‡ The tropical bright colored thin forms are Polystictus sanguineus.

Misnamed.

cinnabarina, Trametes.
Sydow, 625 = Polyporus croceus (misdetermination).

cinnamomea-squamosus, Polyporus. Zenker, 2183.

cinnamomeus, Polystictus. Compare oblectans.

conchatus, Fomes. Bartholomew, 2076 (excepting as to juggle)—Fuck. 1382—N. A. F. 918—Sydow, 3423—de Thüm. 510.

"Fries in litt."

conchifer, Polystictus. Rab. 3429—Rav. No. 15, 704.
Compare virgineus.

Misnamed.

conchoides, Polyporus.
Fung. Col. = Polyporus dichrous (variety).
N. A. F. 506 = Polyporus dichrous (variety).
Rav. 8 = Polyporus dichrous (variety).
Rav. No. 22 = Polyporus dichrous (variety).
Note. conchoides is the pale colored, tropical form of Polyporus dichrous of Europe and United States.

Misnamed.

confluens, Merulius.
Rav. No. 23 = Merulius Corium (synonym).

confluens, Polyporus. Karsten, 514—de Thüm. 204, 312, 616.

"Fries in litt."

Ravenel Herb.

confragosa, Daedalea. Bartholomew, 2519—N. A. F. 1928—Rab. 4443—Shear, 1405.
Compare rubescens.

connatus, Fomes. Karsten, 424 (as Trametes)—Sydow, 1302—de Thüm. 407.

"Fries in litt."

Fries misit (Brit. Museum).

The Friesian specimens should settle the name for this plant. I feel there is no warrant nor evidence for not accepting it.

Misnamed.

Rab. 1410=Certainly not Fomes connatus, but I do not place it.
=(Trametes hispida?)
Compare populina, tephroleucus.

Misnamed.

cornea, Trametes.
Balansa, 105, Tonkin=Trametes Persoonii (synonym).

Corium, Merulius. Erb. Ital. 806—Fuck. 1359—Fung. Col. 1113—Krieger, 1957—N. A. F. 316—Rav. 136—Sacc. Ital. 808 (doubtful spec., too poor to say)—Sydow, 3429—Wien, 1142. "Fries in litt."
Compare confluens, papyrinus.

cristatus, Polyporus. Erb. Ital. 1460—Fuckel, 1394—Rab. 707, 1111—de Thüm. 1205.
Compare flavovirens, poripes, virellus.

corruscans, Polyporus. Compare hispidus.

Misnamed.

crocatus, Polystictus.
Rav. 70=Polystictus byrsinus (synonym).
Rav. 1708=Species not same, but misdetermination.

Misnamed.

croceus, Polyporus.
Sydow, 2107=Polyporus rutilans, a bad misdetermination, as the species have no possible resemblance. I noted at Berlin that Hennings habitually made this same misdetermination.
Compare cinnabarina, endocrocinus, Pilotae, resinosus.

Misnamed.

cryptarum, Polyporus.
Fuckel, 1371=Fomes annosus (probably).

cryptopus, Polyporus. Fung. Col. 904—N. A. F. 3406.

Misnamed.

cupreo-roseus, Polyporus.
Heller, Hawaii, 2653=Trametes Persoonii (misdetermination, which is a mild term to use for such a bad guess, the plants having no resemblance or analogy to each other.)

Misnamed.

cupulaeformis, Polyporus.
N. A. F. 308=Polyporus pocula (synonym).
Rab. 3328=Polyporus pocula (synonym).
Rav. 210 and No. 10=Polyporus pocula (synonym).

Curtisii, Polyporus. Bartholomew, 2832—N. A. F. 802—Rab. 3430.

cuticularis, Polyporus. Karsten, 708—Sydow, 1202—de Thüm. 2006 (excepting as to juggle).
"Fries in litt."
Compare radiatus, resinosus.

Misnamed.

dealbatus, Polyporus.
Rav. No. 10=Polyporus mutabilis (misdetermination).
(Cfr. Stipitate Polyporoids, page 190.)

Misnamed.

destruens, Merulius.
Desm. 125, 668=Merulius lacrymans (synonym).

(Correct?)

destructor, Polyporus. Rab. 2302—Sydow, 403.

I cannot say the contrary, as I do not know the species. Rabenhorst states: "This species is in no ways as 'gemein' as many mycologists appear to think. The characters are zonate within, pores elongated, dentate, lacerate."

dichrous, Polyporus. Karsten, 237—de Thüm. 707.
"Fries in litt."
Compare conchoides.

Misnamed.

Drummondii, Polystictus.
Balansa, 1403=Polystictus versatilis (misdetermination). (Changed to Polystictus Spegazzini in Saccardo, which hence beecmes a synonym for Polystictus versatilis.

dryadeus, Polyporus. de Thüm. 4, 712.

Misnamed.

dubius, Polyporus.
"Fries in litt." Mss. name only. It appears to be plant called "lacteus" now.

ectypus, Polystictus. N. A. F. 2011—Rav. 716.

elegans, Polyporus. Fuck. 1395 (Pores larger than normal)—N. A. F. 2303.
"Fries in litt." as Polyporus nummularius, which Fries only held to be a small form of Polyporus elegans.

Misnamed.

elegans, Trametes.
Balansa, 121, Tonkin=Lenzites repanda (synonym).

Misnamed.

Ellisianus, Polyporus.
Baker, 55=Fomes fraxinophilus (synonym).

Misnamed.

endocrocinus, Polyporus.
N. A. F. 2508, afterwards amended to Polyporus Pilotae, which is a synonym for Polyporus croceus.

Misnamed.

epileucus, Polyporus.
de Thüm. 1110. I suspect this is Polyporus salignus, as illustrated by Bulliard, but it is not the ideal form of Polyporus salignus. I do not know the specimen for certain, but it is not Polyporus epileucus, as known to me from the "type locality" Femsjo, Sweden.
"Fries in litt." If this specimen attributed to "Fries in litt." is correct, then my conclusions as to Polyporus epileucus are incorrect. These are surely Polyporus pubescens in sense of Fries' writings.

Europaeus, Favolus. Fung. Col. 1111—N. A. F. 604—Sacc. 28.

Misnamed.

Evonymi, Polyporus.

Aust. Hung. 1153=Fomes ribis (synonym).
Briosi & Cavara, 323=Fomes ribis (synonym).
Fuck. 2603=Fomes ribis (synonym).
Krieger, 14=Fomes ribis (synonym).
Rab. 2730=Fomes ribis (synonym).
Sacc. Ven. 414=Fomes ribis (synonym).
Sydow, 505=Fomes ribis (synonym).
de Thüm. 2203=Fomes ribis (synonym).

The form on Euonymus is often thicker and of brighter color than the form on Ribis species. It occurs in Europe on Euonymus, but not in the United States, where species of Euonymus are common.

Misnamed.

expansus, Polyporus.

Desm. 16=Fomes fomentarius (doubtful, abnormal in a cave).

fasciculata, Solenia.

The species of Solenia are not listed.

Misnamed.

favoloides, Polyporus.

Zenker, 1370. Not correct. cfr. Stipitate Polyporoids, fig. 470. This is close to Polyporus arcularius, but thinner.

Misnamed.

favoloides as var. of Polyporus grammocephalus.

Zenker, No. 1342. I think this should be held as a species of Favolus, while excepting as to its large favoloid pores, it corresponds to Polyporus grammocephalus. This form occurs in Africa, where it is common.

Zenker, No. 1561. Specimen at British Museum is an Agaric, no doubt an error of enclosure.

Misnamed.

Feathermanni, Polyporus.

Rav. 6=Trametes hydnoides (synonym).

Misnamed.

fibrillosa, Trametes.

Karsten, 311=Polyporus aurantiacus.

The story of Karsten's work with this plant is told in detail in the Polyporus pamphlet (section Apus) now in preparation.

(Doubtful to me.)

fibula, Polyporus.

Sydow, 1709.

fimbriatum, Porothelium. Brink. 200—Sydow, 1805, 2810, 4801.

"Fries in litt."

Compare laceratus.

Misnamed.

flavovirens, Polyporus.

Barth, 1754=Polyporus cristatus (synonym).
N. A. F. 1689=Polyporus cristatus (synonym).

Misnamed.

Floridanus, Polystictus.

N. A. F. 601=Polystictus Friesii (synonym).
Plant Boliv. 1325—Polystictus Friesii (synonym).

Rav. F. Amer. No. 7=Polystictus Friesii (synonym).
Rav. No. 11=Polystictus Friesii (synonym).
Ule, 46, Brazil=Polystictus Friesii (synonym).

focicola, Polystictus. Compare parvulus.

fomentarius, Fomes. Brinkman, 150—Eriksson, 77—Fung. Col. 908—Karsten, 240—Krieger, 721, 1715—Krieger, Schad. 117, 118, 119—Linhart, 251—N. A. F. 1102—Sacc. Ven. 14—Syd. 303, 2901—de Thüm. 716, 2109—Waghorn, 70—(Wien) 310.

Misnamed.

Fuck. 1385, 1386, 1898=Fomes laccatus (misdetermination). (cfr. note under adapersus.)
Compare expansus, Hartigii, igniarius, Inzengae, nigricans.

fragilis, Polyporus. Brink. 142.

Compare mollis.

fraxineus, Fomes. Rab. 1606—de Thüm. 806.

Compare sublingueformis.

fraxinophilus, Fomes. Fung. Col. 909—N. A. F. 3302.

Compare Ellisianus.

Misnamed.

Friesiana, Hexagona.
Balansa, 3402=Polystictus pinsitus (synonym).

Friesii, Polystictus. Compare Floridanus, ludens, sector.

frondosus, Polyporus. Fuckel, 1393—Krieger, 1115—Rabenh. 907—Rab. Klotz, 13, 512—Sacc. Ital. 212—Sacc. Venet. 817—Sydow, 807—(Wien) 307.

Misnamed.

N. A. F. 2103=Polyporus giganteus (misdetermination).
Rab. 3947=Polyporus giganteus (misdetermination).
Ravenel Herb.=Polyporus giganteus (misdetermination).
Compare Anax.

Misnamed.

fuliginosus, Polyporus.
=Polyporus benzoinus (juggle).

Misnamed.

fulvus, Fomes.
Bartholomew, 2274=Fomes pomaceus (a juggle).
Brinkman, 149=Fomes pomaceus (an opinion only).
Krieger Schad, 169, 170=Fomes pomaceus (an opinion only).
Rab. 1701=Fomes ribis (misdetermination).
Sydow, 1509=Fomes roburneus (misdetermination).
de Thuemen, 108=Fomes applanatus (misdetermination).
"Fries in litt."=a mistake, surely, for not plant Fries so illustrated.

fumosus, Polyporus. Fuckel, 1391, thin specimen—N. A. F. 2902—Sacc. Ven. 10—Syd. 1012, 3108—de Thüm. 5 (?)—Wartman & S. 434.

Misnamed.

Rab. 3644=Polyporus adustus (misdetermination).
de Thuem. 604, 816=Polporus adustus (misdetermination).
Compare alligatus, imberbis, pallescens.

Misnamed.

funalis, Trametes.
N. A. F. 2106=Trametes hispida (misdetermination).

fuscus, Cyclomyces. (Wien) 607.

gibbosa, Daedalea. Aust. Hung. 3540—Fuck. 1364—Krieger, 67—Linhart, 147—Rab. 2204—Syd. 209, 2111—de Thüm. 917, 1104.

All as Trametes, but "Trametes" gibbosa is always a Daedalea. It never takes Trametes forms.

Compare Kalchbrenneri, salignus.

giganteus, Polyporus. Fuckel, 1897—Krieger, 1160—N. A. F. 306—Rab. 4, 345—(Wien) 1144.

Misnamed.

Sydow, 52=Polyporus montanus (misdetermination).
Polyporus giganteus and montanus are similar, but the latter can be distinguished by its echinulate spores. Polyporus montanus is rare in Europe and Sydow's (misnamed) specimen is the only one I have noted in the exsiccatae.
de Thüm. 310=(afterwards correctly emendated to Polyporus squamosus).

gilvus, Polyporus. Balansa, Paraguay, 3912—Bartholomew, 2834 (except as to generic juggle)—Fung. Col. 603—Harper, 1633a—N. A. F. 310—Rab. 3431—Ravenel, 420—Ule, Brazil, 43.

Compare isidioides.

grammocephalus, Polyporus. Ule, 14 Brazil—Zollinger, No. 15, & 2081, Java.

The Brazil collection (and it is rare in American tropics, common in the East) is correct, but is thinner, smaller pored plant than the Eastern plant.

Compare favoloides as var. of Pol. grammocephalus.

graveolens, Fomes, N. A. F. 603 (as Trametes)—Rav. Fasc. No. 8.

"ex herb. Schw." in Brit. Museum.

Guyanensis, Polyporus. Compare juruanus, as var. of Polyporus Leprieurii.

Misnamed.

Hartigii, Fomes.
Krieger, 720=Fomes robustus (synonym).
Krieger Schäd, 77=Fomes robustus (synonym).
Rab. 3948=Evidently misnamed, for not Fomes robustus, for which Fomes Hartigii is a synonym. The specimen appears to be Fomes fomentarius, probably an error of enclosure, for I do not believe Fomes fomentarius ever grew "in Pino Picea."
Sacc. Ital. 1001=Fomes robustus (synonym).

hepatica, Fistulina. Desm. 272—Fuck. rhen. 1357—Krieger, 1914—Oud. 110—Rab. 3325—Sacc. Ven. 105—Sydow, 2611—de Thüm. 623—Trog.

Australia, Miss Campbell.

hirsutus, Polystictus. Aust. Hung. 756—Fuck. 1378—Fung. Col. 204—Karsten, 515—N. A. F. 311—Rab. 510, 2103—Sacc. Venet. 16—Sydow, 714—de Thüm. 216, 1005*—Wartman, 23.

* de Thüm. 1005, called "var. puberulus," is a form with pale almost white hairs. Most of the European collections are the "fauve" form, called Polystictus lutescens (cfr. Myc. Notes, p. 468). In America, Polystictus hirsutus takes usually a darker color than in Europe.

Misnamed.

Sacc. Ital.=? resupinate, too poor to distinguish.
Compare velutinus, zonatus.

hispidus, Polyporus. Fuckel, 1389—Krieger, 719—Krieger, Schad, 19—Sacc. 213—de Thüm. 914, 1502—(Wien) 309.

Misnamed.

Rab. 406=Polyporus Schweinitzii (misdetermination).
Syd. 1508=Polyporus corruscans (misdetermination).

hispida, Trametes. Cavara, 68—Erb. Ital. 1352—Sacc. 822—Sacc. Ven. 21.
Compare funalis, lutescens, Peckii, populina, Trogii.

(Correct, doubtful.)

Holmiensis, Polyporus. Romell, 11 (form of salignus for me).

hydnoides, Trametes. Balansa, 3386—Fung. Col. 914—N. A. F. 505—Pittier & Durand, 110—Ule, 739.
Compare Feathermanni.

ilicincola, Polystictus. Rav. Ser. No. 17.

Only known from this exsiccatae, which has always been a puzzle. Pores much as Pol. pergamenus, or closer to Pol. Friesii. Surface smooth, minutely silky. It seems distinct, but most specimens in the various museums are badly eaten. There is a characteristic specimen at British Museum.

igniarius, Fomes. Desm. 2156—Erb. Ital. 766, 767‡—Eriksson, 78—Fuckel, 1383*—Karsten, 96—Krieger, 1809 (Barring the generic juggle)—Krieger, Sax. 526—Krieger, Schäd. 20—N. A. F. 915—Rab. 1112—Syd. 460, 1603—de Thüm. 105.

Imperfect doubtful specimens.

Fung. Col. 401.
Migula, 143.
Rav. IV. 5.

Note. These references are made without microscopic examination, but we believe we are familiar enough with the species to recognize it, and our microscope was not at hand when we made the list. Specimen marked ‡, from its color and habitat may be Fomes robustus. * This seems to have a slightly laccate surface and is probably the form Fomes roburneus.

Misnamed.

Aust. Hung. 755 = Fomes pomaceus (misdetermination).
Desmez. 1807, 2157 = Fomes pomaceus (misdetermination).
Kunze, 202 = Fomes pomaceus (misdetermination).
Roumeg. 202 = Fomes pomaceus (misdetermination).
Sydow, 3216 = Fomes pomaceus (misdetermination).
Sydow, 4202 = Fomes fomentarius (misdetermination).
de Thüm. 714, 1007 = Fomes pomaceus (misdetermination).
Compare salicinus.

Misnamed.

imberbis, Polyporus.
Brinkman, 143 = Polyporus fumosus (synonym).
Cavara, 67 = Polyporus fumosus (?) (synonym).

Misnamed.

imbricatus, Polyporus.
(Wien) 609 = thick, conglobate form of Polyporus sulphureus (synonym).

incarnatus, Merulius. Rab. 3737—Rav. No. 22.
Compare rubellus.

Misnamed.

Inzengae, Fomes.
Erb. Ital. 686 = Fomes fomentarius (synonym).
Erb. Ital. 977 = Fomes fomentarius (synonym).
Rab. 1508 = Fomes fomentarius (synonym).

Misnamed.

irregularis, Polyporus.
Romell, 9 = Polyporus amorphus (synonym?).
Sowerby's illustration is too extremely doubtful to be used as a substitute for Polyporus amorphus.

Misnamed.

isidiodes, Polyporus.
de Thüm. 1105 = Polyporus gilvus (synonym).

Misnamed.

juruanus as form of Polyporus Leprieurii.
Ule, 44, Brazil = Polyporus Guyanensis (misdetermination, cfr. Stipitate Polyporoids, Fig. 485).

Misnamed.

Kalchbrenneri, Trametes.
Aust. Hung. 759 = Daedalea gibbosa (synonym).

Rab. 1411=Daedalea gibbosa (synonym).
Syd. 813=Daedalea gibbosa (synonym).
de Thüm. 8=Daedalea gibbosa (synonym).

Misnamed.

labyrinthicus, Polyporus.

N. A. F. 309. (Afterwards correctly emendated as Polyporus obtusus. Nothing historical exists as to the identity of Polyporus labyrinthicus, but it was probably Polyporus obtusus.)

Misnamed.

laceratus, Porothelium.

Rav. fasc. No. 19=Porothelium fimbriatum (synonym).

laccatus, Fomes. Compare adspersus, fomentarius.

lacrymans, Merulius. Brinkman, 120—Briosi & Cavara, 289—Erb. Ital. 934—Fuckel, 1361—Fung. Col. 1115—Karsten, 33—Krieger, 120, 420, 1911—Libert, 320—Linhart, 443—N. A. F. 1307—Rab. 508—Sacc. Ital. 215—Syd. 407, 4213 (very poor).

"Fries in litt."

Compare destruens.

lacteus, Polyporus, compare dubius.

Misnamed.

lateritius, Fomes.

Alaska, Cooke's determination, British Museum=Hydnofomes tinctorius.

For absolute carelessness or incompetency, such determinations take the prize. Cooke was the "author" of Fomes lateritius, a true Fomes with pores. Hydnofomes is a Hydnaceous plant with large teeth. There is the same resemblance between them there is between a porcupine and a honey-comb. And they call mycology a "science" (sic), with such named specimens in the British Museum. It is only fair to state that the specimen has the teeth broken off, but even this is no excuse for such blunders.

leprodes, Polyporus.

Fries misit, British Museum. This is an imbricate form of Polyporus varius as found in Fries, not a form of Polyporus melanopus as found in Saccardo.

leucophaeus, Fomes. Compare megaloma.

leucospongia, Polyporus. Ellis, 1104—Rab. 3432.

licnoides, Polyporus. Compare subtropicalis.

lignosus, Polyporus. Compare Auberianus.

Misnamed.

Linharti, Polyporus.

Linhart, 252=Fomes applanatus (synonym).

A description as long as the common law was issued with this "new species," which, had the author known the simplest elements of the subject, he would have known it is the commonest "old species" that grows.

lucidus, Polyporus. Erb. Ital. 769—Fung. Col. 202 (?)—Karsten, 239—Krieger, 1116—N. A. F. 5 (?)—Rab. 1003,

1213—Rav. No. 5—Sacc. Ital. 1415—Sacc. Ven. 9—Sydow, 2106—Sydow Germ. 53—de Thüm. 104.

Most of above are undoubtedly correct, but it is difficult to refer slices surely. N. A. F. 5 and Fung. Col. 202 are more likely Polyporus resinaceus.

Compare chilensis, Tsugae.

Misnamed.

ludens, Polyporus.

Balansa, 3395 = Polystictus Friesii (synonym).

luteo-nitens, Polystictus. Compare bulbipes.

Misnamed.

lutescens, Trametes.

Sacc. Ital. 411 = Trametes hispida (misreference, cfr. Myc. Notes, page 468. The mistake was originally made in Fung. Kmet., and Saccardo makes it more real by distributing a specimen).

de Thüm. 311 (emended from Polyporus ferruginosus) = Polyporus radiatus (?). The "emendation" were better not made, for Polyporus lutescens is as bad a misdetermination as Polyporus ferruginosus. It has no relation or resemblance to either species.

Fuckel, 1380 = Polyporus radiatus. Same remarks.

Misnamed.

Magnusii, Irpex.

Rab. 3738—Irpicoid form of Daedalea unicolor. cfr. Myc. Notes, page 451.

Misnamed.

marginatus, Polyporus.

Fuckel, 1374 = Fomes annosus (misdetermination).

Fung. Col. 1204 = Fomes pinicola (juggle).

Linhart, 446 = Fomes pinicola (juggle).

marmoratus, Fomes. Compare plebeius.

Misnamed.

megaloma, Fomes.

Bartholomew, 2521 = Fomes leucophaeus (juggle).

Kellerman, 164 = Fomes leucophaeus (juggle).

Rab. 4445 = Fomes leucophaeus (juggle).

(Wien) 1143 = Fomes leucophaeus (juggle).

All juggles, and the first three double juggles. The name megaloma not only has no historical truth back of it, but is directly contrary to the collateral evidence that exists.

melanopus, Polyporus. Karsten, 617.

Misnamed.

membranaceus, Polyporus.

Ule, 2109 = a related species that I cannot place at present.

Misnamed.

mollis, Polyporus.

Karsten, 312 = Polyporus fragilis.

Note. Polyporus mollis and fragilis are very similar plants (cfr. Letter No. 43) as to distinction.

Misnamed.

mollis, Trametes.

N. A. F. 2506 = Daedalea cervinus (synonym).

Rab. 3739 = Daedalea cervinus (synonym).
de Thüm. 2004 = Daedalea cervinus (synonym).
Priority, suitability, and good faith were all violated when Fries changed Persoon's name cervinus to mollis.

Misnamed.

molliusculus, Polystictus.
Kellerman, 25 = Polyporus pubescens (misdetermination).

montanus, Polyporus. Compare giganteus.

Misnamed.

morosus, Polyporus.
Rab. 1605 = Polyporus benzoinus (synonym).
de Thüm. 713 = Polyporus benzoinus (synonym).

mutabilis, Polyporus. Rav. 109—Ule, 47, Brazil.
Compare dealbatus.

Misnamed.

nidulans, Polyporus.
Karsten, 115 = Polyporus rutilans (synonym).
N. A. F. 1598 = Polyporus rutilans (synonym).

Misnamed.

nigricans, Fomes.
Erb. Ital., 768 = Fomes fomentarius (misdetermination).
Syd. 552, 4608 = Fomes fomentarius (misdetermination).

Misnamed.

nitida, Trametes.
Balansa, 124, Tonkin = Trametes Persoonii (synonym).

niveus, Merulius.
I prefer to pass this species for the present, also haedinus, aureus, molluscus, fugax, ambiguus, porinoides, rufus, serpens, Ravenelii, ceracellus, bellus, pallens, crispatus. I have not studied the museum species of Merulius in detail. There are exsiccatae (so named) of all above.

nodulosus, Polyporus. Krieger, 569.
Note. nodulosus is a beechwood form of Polyporus radiatus, and Desmaziéres No. 800, under Polyporus radiatus, is a more typical collection of Polyporus nodulosus than this Krieger collection.
Compare polymorphus.

nummularius (see elegans).

oblectabilis, Polystictus. Compare oblectans.

Misnamed.

oblectans, Polystictus.
N. A. F. 1101 = Polystictus cinnamomeus (misdetermination).
Ule, Brazil, 48 = Polystictus oblectabilis (misdetermination).

obliquus, Poria. Sacc. 820 (not sure)—Syd. 2108 (not sure)—(Wien) 1603.
"Fries misit" (a fine specimen).

Misnamed.

obliquus, Polyporus.
Ellis, 313 (emended) wrong, but species unknown to me.
Rav. 424 (emended) wrong, but species unknown to me.

obtusus, Polyporus. N. A. F. 309 (as amended)—Rab. 3330.
Compare labyrinthicus.

occidentalis, Polystictus. Balansa, 3399, Paraguay—Rab. 4346, New Guinea.

Misnamed.

occidentalis, Polyporus.
Rav. No. 18 = Polystictus byrsinus (misdetermination).
Wright, Cuba, 3062 = Polystictus byrsinus (misdetermination).

Misnamed.

occultus, Polyporus.
Rab. 617 = Polyporus rufescens (synonym).

odorata, Trametes. Erb. Ital. 805—Fuckel, 2501—Jaczewski, 180—Karsten, 938—Krieger, 122—Rab. 2003—Sydow, 58, 715, 1104, 4418,—de Thüm. 7, 107—(Wien) 311.

Misnamed.

officinalis, Fomes.
Erb. Ital. 291 = Fomes pinicola (misdetermination).
Rab. 211 = Fomes pinicola (misdetermination).

ohiensis, Fomes. N. A. F. 923 (as Trametes).

osseus, Polyporus. Rab. 706, 4448—Sacc. Ital. 603.

ovinus, Polyporus. Fuck. 2493—Karsten, 309—Rab. 2938—Syd. 1013—Trog.—Błytt in part.

Most of the specimens are correct, but the red specimens so named by Błytt are Polyporus confluens.

Misnamed.

papyracea, Hexagona.
Plant. Boliv. 1327 = Hexagona variegata.

Misnamed.

papyrinus, Merulius.
Brinkman, 187 = Merulius Corium (juggle).

Misnamed.

pallescens, Polyporus.
Fuckel, 1379 = Polyporus fumosus (synonym).
Sydow, 1711 = Polyporus tephroleucus (misdetermination).

pallida, Fistulina. N. A. F. 2, 1929, doubtful, more likely hepatica.

Misnamed.

pallido-fulva, Daedalea.
Fung. Col. 209 = Lenzites trabea.

Misnamed.

parvulus, Polyporus.
N. A. F. 305 = Polystictus focicola (erroneous tradition).
Rav. 8 = Polystictus focicola (erroneous tradition).
(cfr. Polyporoid issue, page 10.)

Misnamed.

Peckii, Trametes.
Fung. Col. 502 = Trametes hispida (synonym).

perennis, Polystictus. Brinkman, 198—Desm. 160, 253, 464, 953—Erb. Ital. 1042 (as Trametes)—Fuckel, 1400 (as Trametes)—Fung. Col. 602—Karsten, 113, 423 (as Trametes)—Klotzsch, 31—Krieger, 224—Linhart, 448—Mougeot, 295—N. A. F. 1701—Oud. 221—Rab. 117 (as Trametes), 2203—Romell, 114—Sydow, 211—de Thüm. 2108—(Wien), 608.

"Fries in litt."

pergamenus, Polystictus. Fung. Col. 302—Harper, 884d, 1805b—N. A. F. 312, 1934(?)—Rab. 1304, 3331—Rav. 13, 424—Waghouse, 183.

Compare abietinus var. coriaceus, pseudopergamenus, prolificans.

Misnamed.

Fung. Col. 804 = Polyporus pubescens (misdetermination).

Misnamed?

Persoonii, Polystictus.

Ule, 1548, Brazil = resupinate, most doubtful. As the museums are full of Trametes Persoonii, there is no excuse for distributing doubtfully determined "resupinate forms."

Compare cornea, cupreo-roseus, nitida.

Pes Capreae, Polyporus. Fuckel, 1399—Krieger, 1958—Sacc. Ital. 1412—Sacc. Ven. 816.

Compare scrobinaceus.

picipes, Polyporus. Bartholomew, 2552—Fuckel, 1397—Fung. Col. 1108—N. A. F. 705—Oud. 222.

This is only a form of Polyporus varius, and not distinct at that. The American form has a thinner pileus, but it is only a question of degree.

Misnamed.

Pilotae, Polyporus.

N. A. F. 2508 (as emended) = Polyporus croceus (synonym).

Compare endocrocinus.

pinicola, Fomes. Karsten, 72—Krieger, 13—Krieger, Schäd. 121—Linhart, 250—N. A. F. 1692—Rab. 3031—Romell, 116—de Thüm. 804, 1906.

Compare marginatus officinalis, resinosus, ungulatus.

Pini, Trametes. Erb. Ital. 133—Karsten, 242—Krieger, 78, 79—Linhart, 348—N. A. F. 602—Rab. 118, 3138—Romell, 7 (Form Abietis)—Seymour & Earle, 549—Welwitsch, 11—Zopf. & Syd. 3.

Misnamed.

Sacc. 1002 = Lenzites abietinus (misdetermination).

de Thüm. 7 = Fomes pinicola (misdetermination).

de Thüm. 817 = Fomes pinicola (?) (misdetermination).

pinsitus, Polystictus. Compare barbatulus, Friesiana, umbonatus, versicolor.

Misnamed.

plebeius, Polyporus.

N. A. F. 1702=Fomes marmoratus (misdetermination).

No resemblance, however remote, to Trametes plebeius.

pocula, Polyporus. N. A. F. 2nd, 2728—Shear, 1407.

Compare cupulaeformis.

Misnamed.

polymorphus, Polyporus.

Sydow, 2109=Poor specimen, but misdetermined. In original sense polymorphus is a synonym for Polyporus nodulosus.

pomaceus, Fomes. Compare fulvus, igniarius.

Misnamed.

populina, Trametes.

Brinkman, 146=Fomes connatus (supposition).

Karsten, 709=Fomes connatus (an allegation). This exsiccatae was probably the original of this allegation.

Roum. 203=Trametes hispida (misdetermination).

Sydow, 1710=Trametes connatus (supposition).

populinus, Polyporus, var. vel n. s.

"Fries in litt." I would not wish to express an opinion without examination by microscope, but most certainly if this was near Fries' idea of populinus, there are no possible grounds to refer Fomes connatus as a synonym for Fomes populinus, in sense of Fries, at least.

Misnamed.

populina, Trametes.

Fuck. 2495=too poor to decide, but misdetermination.

Sacc. 415=Trametes hispida (misdetermination).

Misnamed.

poripes, Polyporus.

Rav. 4=Polyporus cristatus (synonym).

No type of Polyporus poripes exists, but it was probably based on Polyporus cristatus, which has also been known in American mycology as Polyporus flavo-virens.

Misnamed.

pseudopergamenus, Polyporus.

de Thüm. 1102=Polystictus pergamenus (synonym).

Misnamed.

prolificans, Polystictus.

Bartholomew, 2513, 2825, 2924=Polystictus pergamenus (juggle).

A juggle for which there was not the slightest excuse. The "type" was a distortion, not "proliferous" and not recognized by Fries, who always called the plant in normal form Polystictus pergamenus.

Misnamed.

protracta, Trametes.

Syd. 4611=Too poor to determine.

pubescens, Polyporus. Aust. Hung. 3146 (typical)—Fung. Col. 907, 1109—N. A. F. 803, 1933—Syd. 313 (?).

Fries misit. Brit. Museum.

The Friesian type specimen at British Museum is a thin plant with the surface (worn) smooth. I believe Polyporus pubescens and

Polystictus velutinus to be synonyms. The American exsiccatae are called "var. Grayii," but are a doubtful variety.

Compare epileucus, molliusculus, pergamenus.

pulverulentus, Merulius. Sacc. 1406.

A thin Merulius lacrymans.

Compare brassicaefolius.

quercinus, Daedalea. Aust. Hung. 760—Desm. 465—Flora Galliae C. B. 700—Fuckel, 1162 (doubtful as to one)—Fung. Col. 1015—Jack. L. & S. 934—Karsten, 71, 426—Krieger, 162—Linhart, 53—N. A. F. 315—Rab. 4444—Roumg. 102—Sacc. 23, 24, 25—de Thüm. 316—Wartmann, 223—(Wien) 312.

"Fries in litt."

radiatus, Polyporus. Brinkman, 144—Desm. 800*—Karsten, 516 (as Trametes)—Krieger, 422—Rab. 509—Syd. 202, 1604, 4609—de Thüm. 2110—Zopf. & Syd. 17.

* Desm. No. 800 is Polyporus nodulosus, a beechwood form of Polyporus radiatus.

Misnamed.

N. A. F. 405 = Polyporus cuticularis (misdetermination). The abundant colored spores of cuticularis distinguish it from radiatus; the two species are liable to be confused otherwise.

Sydow, 3484 = Misnamed evidently, but I would not wish to refer it.

Compare lutescens.

Misnamed.

radiciperda, Trametes.

Kunze, 1 = Fomes annosus (synonym).

Misnamed.

ramosissimus, Polyporus.

Krieger, 859 = Polyporus umbellatus (juggle).

Misnamed.

Ravenelii Daedalea.

Rab. 1943 = Irpex tabacinus (misdetermination).

Rav. 113 = Irpex tabacinus (misdetermination).

And neither is same as "Daedalea Ravenelii" type in British Museum, otherwise unknown to me.

repanda, Lenzites. Compare elegans.

Misnamed.

resinosus, Polyporus.

Fuckel, 1385 = Fomes pinicola (misdetermination).

Fung. Col. 203, 906, 1304 = Polyporus fuscus (synonym).

Karsten, 118 = Polyporus benzoinus (synonym?).

Kellerman, 105 = Polyporus fuscus (synonym).

N. A. F. 406 = Polyporus fuscus (synonym).

Oud. 227 = Fomes annosus (misdetermination).

Rab. 3332 = Polyporus fuscus (synonym).

Sacc. Ven. 13 = Polyporus croceus (misdetermination).

Sydow, 404=Polyporus cuticularis (misdetermination).
de Thüm. 1106=Fomes pinicola (misdetermination).
"Fries in litt."=Polyporus benzoinus (synonym?),
Polyporus resinosus in the original sense of Schrader was probably Fomes laccatus of modern mycology; in sense of Fries, the frondose wood form of Polyporus fuscus of Persoon; in American mycology (mostly), Polyporus fuscus not exactly same plant as the European analogue.

rheades, Polyporus. Sacc. 1203. This is the form on Tamarix, called Polyporus tamaricis, which is a synonym for Polyporus rheades.

rhipidium, Polyporus. N. A. F. 920 (as Favolus)—Rav. Fasc. No. 9 (as Favolus)—Ule, 992 (as Gloeoporus).

ribis, Fomes. Aust. Hung. 754—Brinkman, 199—Desm. 314, 566—Erb. Ital. (1264)—Fuckel, 1381*—Krieger, 423—Krieger Schäd, 171—Kunze, 2*—Linhart, 349—N. A. F. 1693—Rab. 2937—Sacc. 20*—de Thüm. 315*, 509—Zopf & Sydow, 68*.

Those marked * were called Trametes Ribis. All are on species of Ribis.

Compare Evonymus, fulvus.

rigidus, Polystictus. N. A. F. 1694, 1695—Rav. Fasc. 1, No. 15, Or Polystictus rigens, as found in Saccardo.

roburneus, Fomes. Compare fulvus.

robustus, Fomes. Compare Hartigii.

roseus, Fomes. de Thüm. 1904 (excepting as to the juggle).

Misnamed.

Griffiths, 351=Trametes carneus (an alleged synonym, but a mistake.)
Compare rufo-pallidus.

Misnamed.

rubellus, Merulius.
N. A. F. 2004=Merulius incarnatus (synonym).

rubescens, Ptychogaster. Rab. 3946.
Compare terrestris.

Misnamed.

rubescens, Trametes.
Rab. 118=Daedalea confragosa (synonym).
Sacc. 1411=Specimen too poor to determine.
Spegazzini, 31=Specimen too poor to determine.
de Thüm. 314, 710=Daedalea confragosa (synonym).

Misnamed.

rubriporus, Fomes.
Sacc. Ital. 1416=Fomes torulosus (synonym).

rufescens, Polyporus. *Erb. Ital. 2nd, 140.
Victoria, Australia, Campbell.

* dimidiate form = Polyporus heteroporus cfr. Stip. Polyporoids, p. 158.

Compare biennis, occultus, sericellus.

Misnamed.

rufo-pallidus, Polyporus.

Karsten, 120 = Fomes roseus (synonym).

rutilans, Polyporus. Brinkman, 159—Sydow, 451.

Misnamed.

"Fries in litt."

This specimen is not rutilans in sense of Persoon, but I do not know what it is. It is a plant that turns dark-reddish in drying, on the order of Poria aurantiaca.

Compare croceus, nidulans.

salicinus, Fomes. Brinkman, 148*—Desm. 315—Karsten, 241—Krieger, 819—Oud. 230—Rab. 609—Romell, 12—Wartman & Schenk, 325.

* The pileate form is called also Fomes conchatus, but is same species.

Misnamed.

salicinus, Polyporus.

de Thüm. 1606 = Fomes igniarius (misdetermination).

Misnamed.

salignus Polyporus.

Rab. 1702 = Daedalea gibbosa (misdetermination).

Compare epileucus, Holmiensis.

sanguineus, Polystictus. Balansa, 114, Tonkin-Balansa, 3385, Paraguay—Fung. Col. 912—Harper, 1623a—N. A. F. 501—Rab. 3032, South Africa—Rav. 16, 418—de Thüm. 905, discolored, 805, South Africa.

(Correct?)

Schulzeri, Polyporus.

Linhart, 449. I do not know as to this, but it is not the same as listed in Fungus Kmet. under this name. The Fungus Kmet. specimen is possibly the same as Polyporus obtusus of the United States. This certainly is not.

Schweinitzii, Polyporus. Fung. Col. 1203—Oud. 220—Rab. 1002, 1602—Sacc. Ital. 406—Syd. 808—de Thüm. 1108, 2107—Waghorn, 459.

"Fries misit" British Museum.

Compare hispidus, sistrotremoides.

Misnamed.

scrobinaceus, Polyporus.

Rab. 407 = Polyporus Pes caprae (juggle).

scutellatus, Fomes. Fung. Col. 1010—N. A. F. 1597—Waghorn, 494.

"ex herb. Schw.," British Museum.

Misnamed.

sector, Polystictus.

Ule, 1551, Brazil = Polystictus Friesii (synonym).

Wright, 279, Cuba = Polystictus Friesi (synonym).

These two collections are, however, the small depauperate form which was originally named Polyporus sector, the most "prior" name.

semipileatus, Polyporus. N. A. F. 3407.

Compare chioneus.

Sepium, Trametes. N. A. F. 11—Rav., Fasc. No. 21, 216—de Thüm. 1306—Waghorn, 685 (doubtful, possibly Trametes variiformis).

serialis Trametes, Rab. 3455—Romell, 117, 118.

"Fries in litt."

Compare squalens.

Misnamed.

sericellus, Polyporus.

Sacc. 818 = Polyporus rufescens (synonym).

Misnamed.

serpens, Trametes.

N. A. F. 112, 1707 = (See note).

Sydow, 3426 = Daedalea cervina (?) specimen poor (misdetermination).

The abundant tropical plant so common in Florida, which has mostly been referred to Trametes serpens, I am convinced is wrong, and not same as the Northern European species, but I have no name for it.

Compare Stephensii.

Misnamed.

sistotremoides, Polyporus.

Aust. Hung. 3145 = Polyporus Schweinitzii (juggle).

Brinkman, 145 = Polyporus Schweinitzii (juggle).

spathulatus, Favolus. Compare vibelinoides.

Misnamed.

spongiosus as var. of Polyporus nidulans.

"Fries in litt."

The specimen is Poria aurantiaca, as illustrated Rostk. 4, t. 58. It has no relation to Polyporus nidulans in sense of Fries, which is a synonym for Polyporus rutilans.

spumeus, Polyporus. Erb. Ital. 877 (Correct)—de Thüm. 815 (doubtful, probably incorrect).

Misnamed.

Fuckel, 1384 = Fomes fraxineus (misdetermination).

N. A. F. 1103 = Fomes geotropus (misdetermination).

de Thüm. 1103 = Polyporus croceus (misdetermination).

Compare borealis.

Misnamed?

squalens, Trametes.

Rab. 3528. This is a co-type specimen. I do not know it as a species, and it may be a good species. The specimen is partly resupinate and partly pileate. Surface brown. Is it not Trametes serialis?

squalidus, Merulius. Brinkman, 121.
Fries in litt.
Very close to Merulius lacrymans.

squamosus, Polyporus. Cavara, 66—Fuckel, 1398—Krieger, 172, 860—Sacc. Ital. 211—Sacc. Ven. 8—Sydow, 212—de Thüm. 310 (emendated).
Compare giganteus.

Misnamed.

Stephensii, Trametes.
Rab. 117=Trametes serpens (synonym).
Rav. No. 7=unnamed probably. See note under Trametes serpens.

Misnamed.

stereoides, Polyporus.
Fuckel, 2399=Polystictus versicolor (misdetermination).

suaveolens, Trametes. Aust. Hung. 758—Cavara, 16—Erb. Ital. 231—Fuckel, 1365—Fung. Col. 1206—Krieger, 524—N. A. F. 10—Sacc. Ital. 6—Sacc. Ven. 22—Sydow, 405.
"Fries in litt."
All are surely correct excepting the "Fries in litt.," which is probably Trametes hispida.

Misnamed.

sublingueformis, Polyporus.
Linhart, 54 "type"=Fomes fraxineus (synonym).

subsquamosus, Polyporus. Rab. 1209.
This is correct as known to Fries, but as to Linnaeus? It is Polyporus griseus of Peck.

Misnamed.

subtropicalis, Polyporus.
Balansa, 3400, Paraguay (co-type)=Polyporus licnoides (synonym).

sulphureus, Polyporus. Aust. Hung. 1154—Cavara, 214—Erb. Ital. 340—Fuckel, 1392—Fung. Col. 1107—Jack. L. & S. 935—Karsten, 310—Krieger, Sax. 365—Krieger, Schäd, 76—Linhart, 149—N. A. F. 707—Sacc. Ital. 1414 (specimen very poor)—Sacc. Venet. 1108—Sydow, 626, 2003—de Thüm. 1008, 1603—(Wien) 945.
Australia, Bailey.
China, Henry.
West Indies, Elliott.
Compare imbricatus.

tabacinus, Polystictus. N. A. F. 1705.
Compare Ravenelii.

Misnamed.

tephroleucus, Polyporus.

Oudemans, 223=Fomes connatus, and surely a bad error to mistake such a common species as Fomes connatus.

Compare pallescens.

Misnamed.

terrestris, Ceriomyces.

Sacc. Ven. 836=Ptychogaster form of Polyporus rufescens.

tinctorius, Hydrofomes. Compare lateritius.

trabea, Lenzites. Compare pallido-fulva.

tomentosus, Polyporus. Compare biennis.

torulosus, Fomes. Compare rubriporus.

tremellosus, Merulius. Brinkman, 118—Cavara, 159—Desm. 553—Erb. Ital. 970—Fuckel, 1358—Fung. Col. 213—Karsten, 243—Krieger, 1013—Libert, 222—N. A. F. 507—Rab. 7, 2307—Rav. No. 15, 715—Sacc. 401—Sacc. Ital. 412—Sydow, 926, 3701—de Thüm. 1111, 2205.

"Fries in litt."

Misnamed.

Tricholoma, Polyporus.

Ule, 15, Brazil=Polyporus ciliaris (cfr. Stipitate Polyporoids, p. 176).

Misnamed.

Trogii, Trametes.

Rab. 4049, 4349=Trametes hispida (synonym).

Type ex Berlin=Trametes hispida (synonym).

Misnamed.

Tsugae, Fomes.

(Wien) 1304=Polyporus lucidus (synonym).

ulmarius, Fomes. Briosi & Cavara, 167—Rab. 616—de Thüm. 206.

umbellatus, Polyporus. Sacc. Ital. 1413.

Compare ramosissimus.

Misnamed.

umbonatus, Polyporus.

Balansa, 3909, Paraguay=Polystictus pinsitus (synonym).

undatus, Polyporus. Brinkman, 136.

(as Poria. It is usually resupinate.)

Compare Broomei.

Misnamed.

ungulatus, Fomes.

Sacc. 214=Fomes pinicola (juggle).

Sydow, 54=Fomes pinicola (juggle).

(Wien), 939=Fomes pinicola (juggle).

unicolor, Daedalea. Many exsiccatae I do not list in detail, but I note none misnamed.

Compare aurea, cinerea, Magnusii.

variegata, Hexagona. Ule, 1553, Brazil.

Compare papyracea.

varius, Polyporus.

Fuckel, (number ?).

"Fries misit," British Museum.

velutinus, Polystictus. Erb. Ital. 804, 1051—Rab. 701 (best), 2301—Sydow, 308? specimen poor—de Thüm. 614 (?), 1206 (?) (nearer hirsutus).

"Fries in litt."

Polystictus velutinus and Polyporus pubescens are thin and thick forms of the same thing.

Misnamed.

Fuckel, 1377 = Polystictus versicolor (misdetermination).
Rav. fasc. 4, No. 6—Polystictus abietinus (misdetermination).
Sacc. Venet. 17 = Polystictus versicolor (misdetermination).
de Thüm. 1305 = Polystictus hirsutus (misdetermination).
Compare albus.

versatilis, Polystictus. Cuming, 2026 (as Trametes) (type)—N. A. F. 2307 (as Trametes).

Compare Drummondii.

versicolor, Polystictus.

There are over forty exsiccatae of this common and variable plant at the British Museum, and I hardly feel that they are worth itemizing, excepting as to a few marked forms.

Jack. L. & S. 656.

This is a dark, thick, subtrametoid form, probably worthy of a distinct name Polystictus nigricans.

Sydow, 4203.

A pale, flaccid form called Polyporus hirsutulus and possibly Polyporus fibula, though opinions vary as to the identity of the latter.

Waghorne,

The forms of Polystictus versicolor with a preponderance of bluish zones are Polystictus azureus, as named by Fries from Mexico.

Compare stereoides, velutinus, zonatus.

Misnamed.

versicolor, Polyporus.

Migula, 154 = Polystictus abietinus (misdetermination).
Migula, 155 = doubtful, too poor to consider.
Rav. No. 14 = Polystictus pinsitus (misdetermination).
Sydow, 3215 = doubtful, too poor to consider.

Misnamed.

vibelinoides, Polyporus.

Zenker, 1359 = error for vibecinoides. It is a Favolus, probably Favolus spathulatus.

Misnamed.

violaceum, Sistotrema.

Mougeot, 678 = Polystictus abietinus (synonym).

Misnamed.

virellus, Polyporus.

Sydow, 3512. Probably Polyporus cristatus, but specimen poor and discolored. Polyporus virellus in sense of Fries was based on a regular mesopodial form of Polyporus cristatus.

Misnamed.

virgineus, Polystictus.

Rav. 11 = Polystictus conchifer (synonym).

volvatus, Polyporus, N. A. F. 307.

Misnamed.

Warmingii, Polyporus.

Ule, 1., Brazil = Stereum aurantiacum.

Cfr. Stipitate Stereum, page 22. I would think the British Museum example was a misenclosure, but I note that the corresponding exsiccatae at Berlin is the same misdetermination.

zonatus, Polystictus. Romell, 15—de Thüm. 2105.

"Fries in litt."

"Fries misit."

Polystictus zonatus is only a form of Polystictus versicolor and often not "zonate." Around Upsala it is more common than the usual form. The value of the species, if it has any, rests on the color as shown in Rostk, t. 44, which Fries cites.

Compare angulatus, Cerasi.

Misnamed.

Fuckel, 1376 = Polystictus versicolor (nearer than to zonatus).
Migula, 156 = doubtful, specimen too poor to refer.
Sydow, 920, 4610 = Polystictus hirsutus (nearer than to zonatus).
de Thüm. 613 = Polystictus versicolor (nearer than to zonatus).

ADDENDA.

Having three pages to fill out in this Letter, we print some matter that has been standing in type, some of it, for several years. Some of the items are a little out of date. All of it has been left over from various Letters and Mycological notes.

ADVERTISEMENTS.

(Crowded out of Letter No. 48.)

adustus, Willd.; affine, Léveillé; affinis, Nees; anebus, Berk.; antilopus, Kalchbrenner; applanatus, Persoon; aratoides, Patouillard; arcularius, Batsch; australe, Bathie; australis, Fries; bicolor, Junghuhn; Blanchetianus, Montagne; candidus, Spegazzini; caperatus, Berkeley; carneo-nigra, Cooke; cinnamomeo-squamulosus, Hennings; coliformis, Dickson; concentrica, Bolton; conicus, Bathie; dendroidea, Berkeley; dichrous, Fries; dictyopus, Montagne; durus, Junghuhn; elegans, Junghuhn; fasciatus Léveillé; favoloides, Hennings; flabelliformis, Klotzsch; flavus, Junghuhn; gallo-pavonis, Berkeley; gibbosa, Persoon; gilvus, Schweinitz; hispidus, Bulliard; hornodermus, Montagne; hystrix, Cooke; immaculatus, Berkeley; leoninus, Klotzsch; lignosus, Klotzsch; lobatum, Swartz; lucidus, Leys; luteo-olivaceus, Berkeley; luteus, Nees; Madagascarensis, Bathie; mangiferae, Léveillé; mastopodus, Léveillé; megaloporus, Montagne; melanoporus, Montagne; Mellisii, Berkeley; minuto-fruticum, Bathie; multiformis, Montagne; occidentalis, Klotzsch; pachyphloeus, Patouillard; pectinatus, Klotzsch; perlevis, Bathie; Persoonii, Montagne; petaloides, Bathie; pruinatus, Klotzsch; pseudosenex, Murrill; pulcherrimum, Berkeley; pullus, Montagne; quercina, Linnaeus; radicans, Berkeley; rawakense, Persoon; repanda, Persoon; rigida, Berkeley; roseola, Patouillard; rugosissimus, Bathie; rugosus, Nees; Sajor Caju, Fries; sculpturatus, Bathie; senex, Montagne; stuppeus, Klotzsch; substigius, Berkeley; subtornatus, Murrill; sulphureus, Fries; surinamense, Léveillé; tabacinus, Montagne; tenuis, Hooker; umbrinella, Fries; unguliformis, Bathie; velutinosus, Bathie; velutinus, Fries; versatilis, Berkeley; vinosus, Berkeley; xanthopus, Fries.

MINNESOTA MUSHROOMS.

"Minnesota Mushrooms" is the title of a publication (Part 4) of Minnesota Plant Studies. Although the work was issued in 1910, it has just come to our notice. We were in Europe when the work appeared. The author is F. E. Clements, State Botanist of Minnesota.

While, of course, the work is not exhaustive, we think it will prove one of the most useful publications on American mycology, particularly to those who are not familiar with the common species. It is well illustrated with photographic cuts that are characteristic enough, so that the common fungi of the woods can mostly be easily identified. The author should be strongly commended for two things:

First, he used binomials as the names for the plants, and made no reference to the biographical citations to those who are alleged to have named them. The general adoption of this plan would cause very rapid advancement in mycology, for the mycological worker would then be more interested in finding out the truth than he would be in proposing as a new species everything he can not identify for the purpose of adding his name. We are glad to note that several recent writers, such as Romell, Massee, Swanton, and now Mr. Clements, have adopted this plan. It will lead to a very superior line of work in the future.

Second, Mr. Clements has used the established names in mycology, and

has paid no attention and made no effort to take part in the cheap name-juggling that is now going on. When the host of busybodies who spend their time hunting up excuses to form "new genera" begin to realize that nobody takes them seriously, there will be less of that work done, much to the simplification of the subject.

A few errors have crept into the work which we mention as an aid in case future editions are printed. Fig. 75, Clavaria Ligula, should probably be Clavaria pistillaria. It is much too obese for Ligula. Fig. 85, Tremella fuciformis, is Tremella vesicaria. It has no resemblance at all to Tremella fuciformis, which is a white species of the tropics, and does not occur in the United States. This mistake has been copied from Atkinson. Fig. 90, Tylostoma mammosus, is evidently Tylostoma campestris. Tylostoma mammosus, which is the common European species, is strangely rare in America. It is a much smaller plant than Tylostoma campestris, with a well-defined tubular mouth. Fig. 97, Dictyophallus impudicus, is Phallus Ravenelii, the same exactly as Fig. 96. The well-developed veil shown on one of the sections, as well as the even pileus, are characteristics of Ravenelii and contrary to the characters of impudicus.

To the best of our belief, all the remaining figures, some 125 in number, are correctly named.

Any one beginning the study of mycology will find Professor Clements' book a most useful help. It can be obtained by sending 30 cents in postage stamps to F. E. Clements, University of Minnesota, Minneapolis, Minn.

A NEW EDITION OF McILVAINE'S BOOK.

There has recently been issued a new edition of the book that was previously issued under the title "One Thousand American Fungi," by Charles McIlvaine, revised by Chas. F. Millspaugh. Mr. McIlvaine was for years an enthusiastic observer of fungi, but he should be classed as a mycophagist rather than a mycologist, as his studies were mostly confined to the edible side of the fungus question. He published some years ago a very bulky work on American fungi, which was largely a compilation. It was very useful, for he compiled in systematic form many of Professor Peck's descriptions, otherwise only found scattered through periodical literature and not accessible to the ordinary students. The present edition appears to me to be an improvement on the original edition, both in the superior quality of the plates and the correctness of the text. There are still a great many errors in the book which should be corrected in a text-book on American fungi. Much of our literature is a compilation of traditions and mistakes, and until some one who has a familiar field knowledge of the subject writes a text-book, these errors will always be handed down.

The price of the book is $5. Publishers, Bobbs, Merrill & Co., Indianapolis, Indiana.

ASEROE ZEYLANDICA IN AFRICA.

The genus Aseroe has never been definitely recorded from Africa. At Berlin there is an unrecognizable specimen which was not published (cfr. Note 12, p. 44, Synopsis of the Known Phalloids). I was much interested in a specimen received (in formalin) from Mr. Chas. A. O'Connor, Mauritius, which from the disposition of the segments I would refer to Aseroe Zeylandica. This species occurs in Ceylon and Java, and it is worthy of note that the African species accords with the East Indian species, but does not agree with any form known from Australia.

POLYSTICTUS PINSITUS.—"Polystictus pinsitus with dark pores is quite a rare plant. When growing in the shade the pores are white, when exposed to the sun and older the pores are often dark. The variation of this species is infinite. The surface is sometimes quite white. If growing covered in the woods sometimes yellow, but rare, mostly cinereous. I think the whole section of Saccardo is the same thing. It has often habits of Irpex."—Extract from letter from Rev. J. Rick, Brazil.

CORRECTION.—"There are no regular, stellate lobes (to the exoperidia of Sphaerobolus stellatus) as usually shown in illustrations."—Myc. Notes, p. 432.

This statement, which was made from observation and photograph of (see Fig. 246) the first fresh specimens I noted of the plant, I have found from subsequent observations to not always be true. I have since seen Sphaerobolus stellatus with the lobes as regular and as sharp as shown in Sowerby's plate, which is the one usually copied.

The genus Lysurus in the West Indies.—There is no record of the genus Lysurus growing in the West Indies, but we have just received from Mr. William H. Patterson, from St. Vincent, a drawing which is undoubtedly a Lysurus. We judge it is the species included in our recent pamphlet as Lysurus australiensis or Lysurus borealis, if there is any difference between these species. The drawing was not accompanied with color notes, but unless it differs in its color it seems to be very much the same as the Australian and American plants. The occurrence of the genus Lysurus in the West Indies is an interesting addition to our knowledge of the Phalloid subject.

"I greatly enjoy your breezy, independent way of writing, and pray convey to the redoubtable Professor McGinty my appreciation of his researches. I wish he might turn his mind to the Spermatophytes for a great field is open to a man of his talents."—Extract from a letter from P.—Cal.

THE GENUS GEASTEROPSIS.

I have had a great deal of trouble in finding the original publication of this "new genus," but have finally received it through the kindness of Mrs. Flora W. Patterson, who has sent me photographs of the original article.

The genus Geasteropsis is, in my opinion, exactly the same as the genus Trichaster, described some sixty years ago from Russia, and considered in Mycological Notes, page 189, plate 17. At the time I wrote the article on the genus Trichaster, I considered the genus valid, although I stated the reasons why it was possibly something abnormal. Since writing this article I have been thoroughly convinced that the genus Trichaster has no value, but was based on an abnormal Geaster with deciduous peridia. I have since received undoubted specimens of Geaster hygrometricus, showing exactly this same character.

THE COLOR OF POLYPORUS OBTUSUS.

Mr. Perley Spaulding, Forest Pathologist, Department of Agriculture, has written me a few notes regarding this species, which may explain the discrepancy in our accounts of its color.

"If the fungus is wet with rain which has recently fallen, it is almost a pure white; but if there has been a long, dry period, so that the fungus is dry and rigid, the color is apt to be yellow. I believe the difference in statements as to color depend almost entirely upon whether the fungus is wet or not. I know that all the specimens which we have dried in our collections have a yellowish tint, and as I recollect, all specimens which I have ever found in the field which were dry have had the same yellow tint. I do not remember seeing a wet specimen which had the yellow color."

POLYSTICTUS PERROTTETII.—On my return to Paris, February, 1911, I found in the cover what is taken for the "type," labeled "Trametes Perrottetii, Lev. Java. M. Perrottet, 1821." This specimen was not in evidence on my previous visit, and does not bear out my note on page 67 of the Polystictus Synopsis. It was no doubt at that time loaned to Bresadola. However, I still believe that my note is in substance correct, and that this specimen is labeled as coming from "Perrottet, Java" *by mistake.* It is exactly the same as Polystictus trichomallus, and the same as the abundant specimens labeled by Leveille on a printed label, "Cuyane francaise, M. Poiteau." Polystictus trichomallus is an abundant plant in the American tropics, and many specimens are in the museums, *all from the American tropics,* except this one, which I am sure was *labeled through error as coming from Java.* I do not believe the species grows in Java, or any portion of the East.

LETTER No. 53.

Reports on specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents I give the "authority" in event they desire to use it. All specimens are acknowledged by private letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address, and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
95 Cole Park Road,
Twickenham, England.

Cincinnati, November, 1914.

ABBOTT, DR. E. K., California:

Fomes (Ganodermus) applanatus.—Pyrenomycetes.

ALLEN, MISS LIZZIE C., Massachusetts:

Polyporus squamosus.—Polystictus versicolor.—Polyporus adustus.—Geoglossum luteum.—Spathularia flavida.—Stereum spadiceum.—Geoglossum difforme.—Cordyceps ophioglossoides.—Xylaria polymorpha.—Daedalea confragosa.—Polystictus cinnamomeus.—Helvella lacunosa.—Bulgaria rufa.—Tremellodendron pallida.—Polystictus conchifer (?).—Bulgaria inquinans.

BONANSEA, DR. SYLVIO F., Mexico:

Schizophyllum commune. Sent under four numbers, though all are the same plant, and it is a common species in many countries, particularly the United States. Dr. Bonansea reports it as comestible, which it no doubt is, but it is not eaten in the United States, and it appears to me it would be too tough to relish. It is known in Mexico as Hongo de quia pinola, Hongo de Pale mulato, Hongo de Jobo, and Hongo de toto poste.—Trametes hispida, called in Mexico Hongo del sanz.

Polyporus secernibilis. This is the first collection I have seen from the American regions. On comparison it is exactly same as type from Ceylon.

Polystictus Friesii.—Polystictus elongatus.—Stereum lobatum (=S. fasciatum, Schw.).—Stereum versicolor. true (see Note 159).—Polystictus azureus. Originally from Mexico.—Polyporus scruposus.—Polyporus Hookerii (see Note 160).—Stereum complicatum.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

BOURDOT, REV. H., France:

We have received a fine lot of resupinate Thelephoraceae from Rev. Bourdot, which will prove of great value if we ever come to take up the American species, as our American plants are no doubt largely the same as European. We consider Rev. Bourdot the best informed man on the subject in Europe, and the only one who has done any systematic work of much value. We are also indebted to him for determinations of large collections we made in Sweden some years ago, and which we had never been able to get determined by any one. We list the specimens as named by Rev. Bourdot when received.

Tremella epigaea. Compared with type, and I think is correct. It has slightly larger and more distinct hyphae than Tremella viscosa and also larger basidia and spores. (Note by Miss Wakefield.)

Tremella viscosa. Compared with the type in Herbarium Persoon. "Not =Tremella viscosa Berk., which he figures with allantoid spores." (Note by Miss Wakefield.)

Gloeocystidium cretatum.—Gloeocystidium albostramineum.—Gloeocystidium stramineum.—Gloeocystidium luridum.—Gloeocystidium contiguum.—Gloeocystidium lactescens.—Gloeocystidium alutaceum.

Peniophora byssoidea.—Peniophora pallidula.—Peniophora heterogenea.—Peniophora sanguinea.—Peniophora tomentella.

Aleurodiscus macroporus.—Aleurodiscus disciformis.—Aleurodiscus cerussatus.—Aleurodiscus aurantius.—Asterostromella ochroleuca.—Dendrothele griseo-cana.

Peniophora ericina.—Peniophora longispora.—Peniophora cremea.—Peniophora setigera.—Peniophora carbonicola.—Peniophora aegerita.—Peniophora laevigata.—Peniophora pubera.—Peniophora nivea.—Peniophora chordalis.—Peniophora clematitis.—Peniophora Molleriana.—Peniophora vermifera.—Peniophora subsulphurea.—Peniophora chaetophora.—Peniophora clavigera.—Peniophora macrospora.—Peniophora subalutacea.—Peniophora laevis.—Peniophora velutina.—Peniophora mutata.—Peniophora juniperina.—Peniophora Eichleriana.

Odontia sudans.—Odontia bicolor.—Stereum Karstenii.—Sebacina podlachica.—Caldesiella viridis.—Coniophora laxa.

BUCK, P. Pio, Brazil:

Polystictus sanguineus.—Trametes hydnoides.—Fomes australis.—Polyporus fruticum.—Polystictus occidentalis.—Lenzites repanda.—Hirneola auricula-Judae.—Fomes senex.—Stereum lobatum.

Polyporus Patouillardii. This differs from all specimens I have previously seen of this species in its thinner context and subzonate surface.

I was delighted to receive three species of the curious Ascomycetes that Professor Alfred Moeller worked out with such care and detail, and of which he gave such good illustrations. They are Ascopolyporus polyporoides, Mycomalus bambusinus, and a species I am unable to determine from Professor Moeller's work.

BUTLER, A. L., Massachusetts:

Daedalea quercina.—Fomes fomentarius.—Stereum spadiceum.—Polyporus betulinus.—Polystictus hirsutus.—Lenzites betulina.

COMPTON, J. S., Michigan:

Physarum bivalve.—Hypoxylon. Sp.

DAVIS, S., Wyoming:

Helvella crispa.—Tylostoma Americanum.—Calvatia defodiodis (see Note 161).—Mycenastrum Corium. Evidently the largest and most common puff ball in the region.—Polyporus varius (see Note 162).—Peziza acetabula.

Catastoma subterraneum. Three forms or conditions distinguishable to the eye can be sorted out from this very ample collection.—Catastoma subterraneum. The usual form with smooth, pale peridium.—Catastoma subterraneum. Form with darker peridium, probably unweathered condition.—Catastoma subterraneum. Form with rugulose peridium. This was named Bovista cellulosa by Ellis, but I cannot believe it is other than a condition of Catastoma subterraneum (or originally of Catastoma circumscissum).

Lycoperdon cepaeforme.—Bovista plumbea.—Calvatia lilacina, var. occidentalis.—Tylostoma albicans.—Merulius lacrymans. Badly infesting the timbers of a cabin built of pine logs.—Helvella elastica.—Helvella atra.

DEARNESS, J., Canada:

Clitopilus abortivus.

DEMETRIO, C. H., Missouri.

Guepinia spathularia.—Tylostoma subfuscum.—Xylaria hypoxylon (conidial).—Exidia glandulosa.

DOBBIN, FRANK, Shushan, N. Y.:

Fomes igniarius.—Daedelea confragosa.—Fomes applanatus.—Irpex cinnamomeus.

DUTHIE, A. V., British South Africa:

Polyporus versicolor.—Lenzites trabea.—Scleroderma, two species. With thin peridium, Scleroderma tenerum. With thick peridium, Scleroderma cepa.—Radulum lirellosum (see Note 163).—Lycoperdon multiseptae (see Note 164).—Polyporus dichrous, Fries.—Polystictus obstinatus, Cooke. This specimen is the thick, Trametes form. The surface, usually pubescent, is worn smooth.—No. 34. Radulum (?). It looks familiar, but I cannot place it. It is intermediate between Radulum and Hydnum.

DUMEE, P., France:

Fomes igniarius.—Fomes conchatus (?).—Polyporus rutilans.—Fomes ribis.—Fomes torulosus (cfr. Myc. Notes, Pages 470. =Fomes fusco-purpureus).—Fomes nigricans.—Trametes pini.—Daedalea confragosa. *Trametoid form* =Trametes Bulliardi.

Fomes robustus.—Fomes species. This plant has same context color and microscopic characters as Fomes conchatus and Fomes salicinus, which are said to be same thing. It is held to be a thick form of it. I think it should have a name as a variety at least, but I believe it has not.

EDWARDS, S. C., Florida:

Xerotus lateritius (see Note 165).—Stereum subpileatum.—Polyporus supinus.—Trametes hydnoides.—Stereum lobatum.—Trametes lactea (see Note 166).—Lentinus velutinus.—Lentinus strigosus.—Polyporus arcularius.

FROGGATT, W. W., Australia:

Battarrea Stevenii.—Fomes robustus. Spores are abundant, globose, 8 mic. hyaline. I find no setae on this collection, although I have Australian specimens with a few setae. Grew on "needlewood" Kakea sp.

GRIFFFIN, D. B., Vermont:

Polyporus elegans.—Polyporus dichrous.—Fuligo septica.—Polyporus albellus.—Polystictus hirsutulus.—Polyporus adustus.—Dacryomyces aurantia.

Polyporus. Unnamed, I believe. It is quite close to Polyporus picipes, but the top is quite distinct as to color. The specimen is young and no spores found.

HAMMERSTEIN, H. C., Deutsch Ost Africa:

Hexagona Pobequini. This is proving to be quite a frequent species in Africa. When I first investigated the subject, there were but three specimens in the museums of Europe, each in a different museum and each with a different name.

Lenzites repanda.—Trametes hystrix.—Polystictus occidentalis.—Polystictus sanguineus.—Hexagona hirta.—Polyporus (Ganodermus) Curtisii. The African plant corresponds exactly with those of our Southern United States.—Trametes protea.—Trametes cristatus. Fine specimens.—Hexagona Pobequini.—Lenzites unknown to me.

Mysterious Fungi? Appears like a dried Clathrus, but has no cellular tissue and is surely not a Phalloid. It seems to be composed of earthly particles held together by fibrous tissue. I find no hymenium or spores. I am not sure that it is a fungus. At any rate, it is not one that has been named.

HIBBARD, MISS ANN, Massachusetts:

Polystictus pergamenus.—Stereum (Hymenochaete) tabacinum.—Polyporus (Gloeoporus) dichrous.—Cordyceps ophioglossoides.—Thelephora radiata. This is Thelephora Caryophyllea, as shown in Schaeffer's Plate 325, but in my opinion it is not distinct from radiata.—Stereum rufum.—Phlebia strigoso-zonata.—Hydnum caeruleum.—Hydnum velutinum.—Hydnum mirabile.—Hydnum aurantiacum.—Hydnum scobiculatum.—Hydnum nigrum.—Trametes carnea.—Stereum spadiceum.—Polyporus radiatus.—Chlorosplenium aeruginosum.—Tremellodendron merismatoides.—Tremellodendron pallida?—Scleroderma cepa.—Polystictus conchifer.

HOUGHTON, H. E., India:

Fomes badius. Heretofore referred by me to Fomes Pappianus, which is a synonym.—Ganodermus Oerstedii.

JONES, KATE A., New Hampshire:

Polyporus elegans.—Polyporus pubescens.—Polyporus brumalis.—Polyporus radiatus.—Polyporus albellus.—Polystictus perennis.—Polystictus versicolor.—Polystictus pergamenus.—Polystictus biformis.—Favolus europaeus.—Pleurotus nidulans.—Lenzites saepiaria.—Daedalea unicolor.—Daedalea confragosa.—Fomes leucophaeus.—Polystictus hirsutus.

KAWAMURA, S., Japan:

Cordyceps sobolifera (see Note 167).

KRIEGER, L. C. C., California:

Schizophyllum commune.—Hydnum auriscalpium.—Polysaccum pisocarpium var. crassipes.—Crucibulum vulgare.—Lenzites betulina.—Stereum hirsutum.—Polyporus corruscans.—Morchella esculenta.—Exidia glandulosa.—Tylostoma campestris.—Scleroderma cepa.—Lycoperdon gemmatum.—Geaster hygrometricus var. giganteus.—Fomes leucophaeus.—Lycoperdon cepaeforme.—Bovistella dealbata.—Calvatia lilacina var. occidentalis.—Tremella mesenterica.

Agarics, all as named by Mr. Krieger.—Stropharia semiglobata.—Panaeolus campanulatus.—Boletus granulatus.—Tricholoma terreum.—Hypholoma appendiculata.—Coprinus atromentarius.—Naucoria semiorbicularius.—Lepiota granulosa.—Lepiota naucina.—Tricholoma pessundatum.—Armillaria Clarkii.—Bolbitius vitellina.—Collybia dryophilla.—Armillaria mellea.—Pleurotus sapidus.—Lepiota naucina squamosa.—Stropharia merdaria.—Tricholoma personatum.—Clitocybe anisaria.—Lentinus lepideus.

LEEPER, B., Ohio:

Stereum bicolor.—Fomes leucophaeus.—Ptychogaster. Sp.—Polyporus rutilans.—Daedalea unicolor.—Hydnum septentrionale.—Fungus abortion. Very curious.—Polyporus croceus.—Polyporus adustus.—Fomes igniarius.—Polystictus hirsutus.—Polyporus fuscus.—Thelephora vialis.—Polyporus (Ganodermus) lucidus.—Fomes fraxinophilus.—Polyporus gilvus.—Daedalea confragosa.—Polyporus cuticularis.—Polyporus frondosus.—Polyporus picipes.—Polystictus velutinus?—Polyporus rufescens.—Polyporus umbellatus.—Daldinia concentrica.

LONGYEAR, B. O., Colorado:

Montagnites Candollei. This is a rare plant and occurs with us only in the West. The spores of the American plant (6x12) are smaller than specimens I have from Mediterranean regions (spores 8x16), but it is the same species.

LOWE, MRS. FRANK E., Massachusetts:

Hydnum mirabile (see Note 168).—Hydnum scobiculatum (cfr. Note 85).—Cyclomyces Greenii.—Hyphomyces lactifluorum.—Hydnum velutinum.—Hydnum amicum, Quel. (=H. vellereum).—Hydnum rufescens.—Hydnum albidum.

MACOUN, JOHN, Canada:

Polyporus hirtus. Two fine specimens. Professor Macoun is the only one of my correspondents that finds this rare plant.

Polystictus pinicola.—Polystictus Macounii (var. of versicolor).—Stereum purpureum.—Morchella conica.—Daedalea confragosa.—Clavaria botrytes.—Lycoperdon nigrescens.—Lycoperdon gemmatum.—Lycoperdon umbrinum.—Polystictus zonatus.—Helvella sulcata.—Polystictus hirsutus, form lutescens.—Stereum (Hymenochaete) tabacinus.—Polystictus velutinus.—Merulius Corium.—Hydnum rufescens.—Rhizina undulata.—Polystictus perennis.—Solenia anomala.—Helvella crispa.—Helvella sulcata.—Polyporus fragilis.—Xylaria hypoxylon.—Hydnum nigrum.—Polystictus versicolor.

Stereum (Hymenochaete) tabacinum. On young firs. It is usually on frondose wood.—Stereum hirsutum.—Stereum vellereum.—Polystictus Macounii (see Note 169).

Also 10 collections of resupinate genera that I do not know as to species.

OLESON, O. M., California:

Thelephora (Sp.) (see Note 170).—Merulius Corium.—Polystictus versicolor.—Helvella elastica.—Helvella monachella.—Helvella lacunosa.—Acetabula vulgaris.—Acetabula ancilis.—Acetabula clypeata?

Grandinia. Growing on puff ball!! I think it was a dead puff ball though. Grandinias are never parasitic as far as I ever heard.

OWENS, C. E., Oregon:

Stereum vellereum. This species, named from New Zealand, we have in the United States only on our northwest coast.—Lenzites betulina.—Polyporus picipes.—Polystictus versicolor.—Lenzites saepiaria.—Polystictus versicolor. Thick form.

Polystictus versicolor with a bluish pileus, as named Polystictus azureus by Fries.—Trametes pini.—Fomes pinicola.—Fomes roseus.—Trametes carnea.—Stereum (Hymenochaete) tabacinum.—Stereum spadiceum.—Fomes (Ganodermus) applanatus.—Polyporus elegans.—Polyporus adustus.—Radulum hydnoides, (as Phlebia)=Odontia lateritia.—Merulius Corium.

New Genus? This is a new combination. A Stereum as to pileus, a Hymenochaete as to setae, and a Coniophora as to spores. I do not know such a combination and think it is unnamed. It grew on Abies.

Fomes igniarius.—Polystictus hirsutus.

Stereum variicolor as form of Stereum hirsutum (see Note 171).—Stereum bicolor (see Note 172).—Polystictus abietinus.—Fomes applanatus.—Daedalea unicolor.—Hymenochaete cinnamomea.—Poria (3 species).

PECKOLT, GUSTAVO, Brazil:

Daedalea umbrina (see Note 173).—Lycoperdon gemmatum.

PIERRHUGUES, DR. France:

Daedalea gibbosa.—Polyporus adustus.—Fomes Evonymi.—Polyporus radiatus.—Daedalea unicolor.

ROMELL, L., Sweden:

Polyporus albosordescens. Part of type.—Polyporus chioneus, in sense of Romell.

SIMMONDS, J., Australia:

Polyporus squamosus (see Note 174).—Polyporus arcularius. Smooth, not scaly, as the European form.—Stereum lobatum.—Fomes robustus var. setulosus.—Polystictus occidentalis.—Polystictus sanguineus.—Polysaccum pisocarpium.—Hirneola auricula-Judae.

Polystictus luteo-olivaceus. Fine specimens. This is an anomalous Polystictus. In a natural arrangement it would go by the side of Hexagona tenuis, although it is thicker and pores are minute.

STERLING, E. B., New Jersey:

Polystictus cinnabarinus tending towards sanguineus.—Tremellodendron pallida.—Phlebia radiata.—Trametes malicola.—Stereum fasciatum.—Cyathus stercoreus.—Hydnum adustum.—Hyphomyces Lactifluorum.—Polyporus lucidus.—Panus torrulosus.—Daedalea confragosa.—Polystictus cinnamomeus.—Hydnum pulcherrimum.—Irpex lacteus.—Lentinus strigosus.—Fistulina hepatica.—Strobilomyces strobilaceus.—Polyporus Spraguei.—Daedalea quercina.—Polyporus albellus.—Polyporus gilvus.—Favolus europaeus.—Lenzites betulina.—Stereum purpureum.—Polyporus rufescens.—Polyporus rutilans.—Pleurotus nidulans.—Fomes applanatus, with yellow pore mouths.—Fomes leucophaeus.—Polyporus cuticularis. Old specimen.—Polyporus cuticularis. Young specimen.—Polystictus lutescens.

TORREND, REV. C., Brazil:

Fomes ochroflavus, as Trametes (see Note 175).—Fomes badius.—Polystictus (or Trametes) cupreo-roseus.—Polyporus (or Polystictus) licnoides.—Polyporus rheicolor. Thicker specimen than usual.—Polystictus (or Polyporus) (Species unknown to me).—Hydnochaete badium (see Note 176).—Lenzites furcata.—Daedalea stereoides.—Fomes pinicola.—Polyporus supinus.—Stereum Leveilleanum (see Note 177).

UMEMURA, JINTARO, Japan:

Polyporus adustus.—Fomes leucophaeus.—Stereum purpureum.—Fomes fraxineus.—Hydnum zonatum.—Hydnum melaleucum.—Polyporus anebus.—Trametes Muelleri.—Stereum bicolor.—Stereum hirsutum.—Calvatia Gardneri.

VAN LEEUWEN, DR., Java:

Hexagona tenuis, var. bivalvis.—Polyporus rubidus.—Polyporus gilvus.—Trametes Persoonii.—Trametes obstinatus.—Lenzites repanda.—Polyporus grammocephalus.—Myriadoporus.—Polystictus occidentalis.—Polyporus obovatus.—Polyporus (unknown to me).—Polystictus gallo-pavonis.—Polystictus vellereus.—Fomes (Ganodermus) testaceus.—Ganodermus zonatus.—Ganodermus fulvellus.—Polyporus fumigatus. Determined by Bresadola. For me a form of Polyporus grammocephalus.—Polyporus virgatus =Polyporus subvirgatus.

WAKEFIELD, MISS E. M., England:

All as named by Miss Wakefield.

Corticium albo-stramineum.—Corticium confine.—Corticium laeve.—Corticium sambuci.—Corticium botryosum.—Corticium subcoronatum.—

Peniophora incarnata.—Peniophora velutina.—Peniophora hydnoides.—Peniophora laevigata.—Peniophora cinerea.—Hymenochaete tabacina.—Kneiffia setigera.—Phlebia vaga.—Phlebia merismoidea.—Radulum laetum.—Odontia farinacea.—Polyporus stipticus.

WILSON, REV. JAMES, Australia:

Fomes squarrosus (see Note 178).—Polystictus xanthopus.—Polystictus flabelliformis.—Geaster plicatus.—Polyporus Wilsonianus (see Note 179).—Hexagona Gunnii.—Polyporus Eucalyptorum (see Note 180).

YAMADA, G., Japan:

Trametes Dickinsii.—Fomes (or Polyporus) Rhaponticus.—Polyporus (Ganodermus) Mangiferae.—Polystictus sanguineus.

YASUDA, A., Japan:

Pachyma Hoelen. As named by Professor Yasuda.—Polystictus (unnamed).—Polyporus (or undeveloped Fomes?).—Lachnocladium?—Polystictus versicolor. — Stereum (Hymenochaete) tabacinum. — Polyporus rigidus.

Stereum (False Hymen.) vibrans. The plant has abundant, colored, encrusted setae (or rather modified, projecting hyphae), not the true type of the section Hymenochaete. They are of the same nature as those of Stereum luteo-badius (cfr. Letter 46, page 6). This type of "cystidia" is intermediate between "Lloydella" and "Hymenochaete," and for us would form a section (False Hymenochaete), and I presume in time a "new genus." The following species of Stereum will fall in this section. Stereum vibrans, luteo-badium (Syn. Kunzei, elegantissmus, cinereo-badium), illudens, and Chailletii.

Polystictus hirsutus.—Exidia glandulosa.—Polystictus elongatus.—Polyporus Cummingii (see Note 181).—Hydnum adustum (see Note 182).—Scleroderma Cepa.—Polyporus (unnamed, I think) (see Note 183).—Hypoxylon lenta. Determined by Miss Wakefield.—Hypoxylon durissimum Prox. Determined by Miss Wakefield.—Polystictus neasmiscus. I have compared this with the type. It is related to Polystictus caperatus, but has no relation to Polyporus radiatus, as suggested.

NOTE 159.—**Stereum versicolor true,** from Dr. S. J. Bonansea, Mexico City, Mexico. The type of Stereum versicolor is in the British Museum. It is the same as Fries named from Mexico Stereum radians, also same as Kunze many years ago distributed as Stereum bellum.

The name Stereum versicolor has, in the United States, been so persistently misapplied to Stereum fasciatum that it is doubtful if it can ever be gotten back to its correct meaning.

I believe these are the first specimens I have ever gotten of true Stereum versicolor. The plant is in most museums of Europe, having been included in Kunze's old set of plants, which is found in several museums. It only grows in the American tropics.

NOTE 160.—**Polyporus Hookerii,** from Dr. S. J. Bonansea, Mexico City, Mexico. This is an unpublished name, based on specimens at Kew that Dr. Hooker collected in India, and referred by Berkeley as a variety of Polyporus scruposus. Polyporus scruposus has the pileus tubercular, rough. Polyporus Hookerii has a pileus strongly fibrillose, strigose. Intermediate collections, however, connect them. At Kew Polyporus Hookerii is found from India and Australia. This is the first collection we have seen from the American tropics.

NOTE 161.—**Calvatia defodioides,** from Simon Davis, collected near Cody, Wyoming. A single specimen, but showing that its dehiscence is typically that of the genus Calvatia.

NOTE 162.—**Polyporus varius,** from S. Davis, collected near Cody, Wyoming. These specimens agree exactly with the European plant and is the type form of Europe. It is

rare in this country. Our common Eastern plant which we call Polyporus picipes is thinner and of darker color, but it is only a geographical form of Polyporus varius.

NOTE 163.—**Radulum lirellosum.** Kalchbrenner (as Lopharia), from A. V. Duthrie, British South Africa. Doubtfully distinct from Radulum mirabile. Kalchbrenner proposed the genus "Lopharia," apparently in ignorance of the existence of the genus Radulum, and described the hymenium as smooth. So it is to the eye, but under a microscope is densely covered with large metuloids sometimes 100 mic. long. Massee discovered these and based on them the genus Thwaitesiella. Patouillard took the idea from Massee, and substituted Kalchbrenner's name, and cited his publication, although Kalchbrenner had not the slightest conception or idea of a genus in the sense of Massee or Patouillard. I favor calling it Radulum. It is a useless split, and the same thing could be done with many other genera, such as Cladoderris.

NOTE 164.—**Lycoperdon multiseptum.** Sent by A. V. Duthie, British South Africa. This was sent as "our common, white puff ball." When I examined it under the microscope, I found it something quite uncommon. The capillitium is scanty, hyaline, thick, 8-10 mic., and divided by septa every 16-20 mic. I never before saw anything like it. Excepting as to this peculiar capillitium, the plant is Lycoperdon pratense in every character. There are several species of Lycoperdon, viz.: pratense, Wrightii, etc., with hyaline capillitium, septate at rare intervals, but this species has the septae so close that it could be likened to the spores of some septate Geoglossum.

NOTE 165:—**Xerotus lateritius** From S. C. Edwards, Gainesville, Fla. A rare genus and fine specimen. The genus Xerotus needs revision very badly. It is mostly a tropical genus, and I have an idea from looking through the covers at Kew that it is largely one species. In short, it is a Panus with colored context, rigid, dry, usually distant, colored gills. We have, we are sure, but one species in the Southern United States, which was called by Berkeley, Xerotus lateritius and Xerotus viticola, and probably has other names from other countries.

All Xerotus have hyaline spores. Cesati discovered that the spores were "nigricantes" and based a genus Anthracophyllum on the discovery. Kalchbrenner confirmed it. What they saw were not spores. Bresadola uses the genus, but remarks, "Spores not found, but I scarcely believe that they are black." If the spores are not black, then of what value is the genus? It seems to me the genus Anthracophyllum, based on a blunder only, should be "zu streichen," as the Germans would say.

The spores of our American plant are piriform, 8x14, **hyaline,** apiculate, with granular contents. The coloring matter of the plant is readily dissolved in potash, and the resulting solution is dark-green.

I have a collection from the Philippines labeled Anthracophyllum nigrita, but I believe it is the same as our American plant. It is darker in color, probably from age, but otherwise seems the same to me. When the name of this plant is settled according to the sacred law of priority, it will probably be Xerotus Berterii.

NOTE 166.—**Trametes lactea.** From Mr. S. C. Edwards, Gainesville, Fla. This is only the Trametes form of the common Lenzites repanda of the tropics.

NOTE 167.—**Cordyceps sobolifera,** received from S. Kawamura, Tokyo, Japan. This is a most welcome addition to my collection. The species was well illustrated by Tulasne, from West Indian material, but no specimen is found in his herbarium. In fact I found no specimen in any museum in Europe, and I believe the specimen just received is the only one in any museum of America or Europe.

Cordyceps sobolifera was named from the West Indies in 1763. In the very early times several papers were published regarding it, as in those days they supposed it to be a mutation of an insect into a plant. It was said to be frequent in several West Indian islands, but no specimen seems to have reached Europe. Dr. Kawamura writes me that it is common in Japan. The species is not included in Matsumura's list.

NOTE 168.—**Hydnum mirabile,** sent by Mrs. Frank E. Lowe, Worcester, Mass. There has been much doubt as to the identity of this plant (cfr. Note 136). Peck years ago referred it to Hydnum mirabile, as illustrated by Fries, but this has been questioned and Atkinson proposed it as a "new species," Hydnum cristatum. Hydnum mirabile is a most rare plant in Europe, and has not been found for sixty years until recently by Erik Haglund at Norrkoping, Sweden. On comparison of the Swedish plant with our American specimens, there is no doubt in my mind they are the same plant. Mrs. Lowe's specimens were sent fresh, but when received by me they were partly dried. I can not detect the acrid taste which this species is reported as having when fresh. Hydnum mirabile is fairly common in our Eastern States. I have specimens from Mrs. Frank E. Lowe, R. B. Mackintosh, Geo. E. Morris, and E. B. Sterling, all from Eastern stations.

NOTE 169.—**Polystictus Macounii,** sent by Prof. John Macoun, Sidney, B. C., Canada. This being the third time we have received the plant, we have concluded to give it a name. By stretching a point, it might be considered as a form of that heterogeneous collection called Polystictus versicolor, but this has a character that versicolor does not have. It is reduced to the base, substipitate, petaloid. There are those who are disposed to undervalue a character of this kind. There are some species, Polyporus Schweinitzii for instance, where the stipe is not a character, but a condition. That is true also of most species of Cladoderris. But what holds in some cases does not hold in the majority. Of the large part of the species considered in our pamphlet, Stipitate Polyporoids, the stipe is as essential and constant a character of the species as are legs a characteristic of a man. So in this case. There are several hundred collections of Polystictus versicolor in our museum, and I doubt if any of them have any tendency to form a stipe. But this plant does, and besides it is about four times as large as the usual pileus of Polystictus versicolor. It

is entitled to a name, for it is a biological entity, whether it is considered as a variety or as a species.

NOTE 170.—**Thelephora (Sp.)**, sent by O. M. Oleson, from Santa Barbara, Cal. This might be referred to Thelephora Caryophyllea, a lacerated form, but I cannot believe it. I have many specimens of Thelephora Caryophyllea in sense of Burt, labeled Thelephora radiata. I do not question that the original figure of Caryophyllea (Schaeffer. t. 325) is the same as the Holmsk figure of Thelephora radiata. It will be found that Fries did not take them as the same, and as law abiding citizens we are supposed to follow Fries. Fries distinguishes Caryophyllea from radiata, the former having even hymenium, the latter striate hymenium. Notwithstanding that Fries ascribes an "even" hymenium to Thelephora Caryophyllea, the original figure shows plainly a strongly striate hymenium as has the usual specimen so referred. We therefore accept the name Thelephora radiata for this species with a striate hymenium, as the name was based on this character. Persoon, as shown by a specimen in his herbarium, interpreted Schaeffer's figure and name as being what is now called Thelephora terrestris, a species with papillate hymenium. In fact, I believe that Persoon, Fries, and Burt each indicate a different plant under the name "Thelephora Caryophyllea, Schaeffer," and for that reason alone the name Thelephora radiata seems far better to me. I think Burt is the only one of the three that has Thelephora Caryophyllea right in its original meaning, but Burt indicates that he intends to follow the law formulated by Messrs. Atkinson and Maire, and it is directly against this "law" to correct Fries' mistakes.

But all this has but little to do with the plant Mr. Oleson sends, which for me is not a form of Thelephora radiata.

NOTE 171.—**Stereum variicolor**, as a form of Stereum hirsutum. This species, received from Mr. C. E. Owens, Corvallis, Oregon, differs from the Eastern and European form of Stereum hirsutum in having narrow, brown, glabrous bands on the pileus, similar in appearance and color to those often noted on Polystictus versicolor. I have gone over my specimens of this species from Europe and foreign countries, and do not find the same features in any collection excepting one from South Africa. It is a very distinct form of Stereum hirsutum. Similar colorations and glabrous bands are found on our common Stereum fasciatum, but otherwise the species is so different it cannot be confused.

NOTE 172.—**Stereum bicolor**, from Mr. C. E. Owens, Corvallis, Oregon. At first sight this seems so different that I am inclined to name it as "var. album." The top of the dry pileus is not brown as our Eastern plant always is, but white, otherwise it is the same in all particulars. When I wet the specimens, however, they become brown, hence it would be difficult to maintain it even as a variety.

NOTE 173.—**Daedalea umbrina**, as var. of Daedalea quercina received from Gustavo Peckolt, Brazil. As to texture and configuration, this is exactly the same as Daedalea quercina of temperate regions. It differs only in the much darker context color. Daedalea umbrina has context dark umber (raw umber of Ridgway), while Daedalea quercina has context that approaches pinkish cinnamon of Ridgway. In this same series Daedalea glabrescens of the East has uncolored context. All these are forms of one species for me.

NOTE 174.—**Polyporus squamosus**, sent by J. Simmonds, Brisbane, Australia, differs from the European form in having smaller, innate scales, and stem is not black.

NOTE 175.—**Fomes ochroflavus**, as Trametes from Rev. C. Torrend, Bahia, Brazil. The plant is very close to Fomes geotropus, and has been confused with it. The surface, context, context color, and general size and appearance are the same. The difference is in the pores, concolorous with the context in ochroflavus, distinct color from the context in Fomes geotropus. Fomes ochroflavus was named as a Trametes, but Rev. Torrend's specimen has distinct pore layers and is typically a Fomes.

NOTE 176.—**Hydnochaete badium**, from Rev. C. Torrend, Bahia, Brazil. The "genus" Hydnochaete is intermediate between Poria such as Poria contigua, and Irpex such as Irpex cinnamomeus. This specimen is really nearer Poria than the Hydnaceous group.

NOTE 177.—**Stereum Leveilleanum**, received from Rev. C. Torrend, Bahia, Brazil. This is found also at Paris, from Brazil, as Thelephora amoena, but the type was from Chile and is not in evidence. It is also Stereum roseocarneum, Fries. Nov. Symb., p. 96. attributed to Schweinitz, but he referred this to Stereum anthocroa in his second work, and it is probably not this plant.

NOTE 178.—**Fomes squarrosus**, received from Rev. James Wilson, Victoria, Australia. Pileus ungulate with a black, rough crust. Context hard, dark-brown (antique brown). Pores minute, round, with concolorous mouths. Pore layers indistinct. Setae few, slender. Spores hyaline, globose, 4 mic. By the eye this Fomes could not be distinguished from Fomes rimosus, but the microscopic characters are entirely different. Mr. Wilson sent a fine photograph of the plant, which will be used in illustrating the species in a synopsis of the genus Fomes, now in preparation. The species is related to Fomes torrulosus and Fomes Cinchonensis.

NOTE 179.—**Polyporus Wilsonianus**, from Rev. James Wilson, Victoria, Australia. This form is a form of Polyporus sulphureus, differing in very thin flesh 1-2 mm. thick, and spores piriform instead of globose. It is only known to me from Australia. I have never noted a similar form in the abundant specimens we have from Europe and America.

NOTE 180.—**Polyporus Eucalyptorum**. From Rev. James Wilson, Victoria, Australia. This is a frequent species. Known only from Australia and New Caledonia. It was well

described by Fries and is strongly characterized by its **very soft**, white, spongy flesh. I found it in several museums in Europe, always misnamed: at Kew as Polyporus leucocreas and Polystictus hololeucus; at Berlin misreferred to Polyporus colossus; at Paris (from New Caledonia) named Polyporus spermolepidis.

NOTE 181.—**Polyporus Cummingii,** sent by Professor Yasuda, Sendai, Japan. Compared with the type. Spores 4x8, hyaline, many smaller. Setae none. I am beginning to be a little suspicious that Polyporus scaurus (Letter 44, No. 63) is the same thing. If so, I have mistaken the spores in the description.

NOTE 182.—**Hydnum adustum,** from Professor A. Yasuda, Sendai, Japan. A frequent plant in the United States, but unknown from Europe. The specimens of Letter 47, supposedly from Portugal, I have since been informed, were American specimens. I believe this is the first time the species has been found, excepting in America.

NOTE 183.—**Polyporus** (unnamed, I think), from Professor A. Yasuda, Sendai, Japan. Pileus orbicular, reduced to the base (6x6x1 cm.). Surface even, light-brown, minutely pubescent. Context white, dry, soft but firm, punky. Pores medium, ½ mm. white, 4 mm. long, with irregular, angular mouths. Spores not found. From this single specimen I would class it in Section 12 (Petaloides), but it is certainly different from any there included. Perhaps, however, it is an "Apus" species, then it is comparable to Polyporus tephroleucus of Europe, but with **different context.**

NOTE 184.—**Odontia crocea.** Color bright orange (orange chrome of Ridgway). Forming a loose, separable membrane, usually on very rotten wood. Margin fimbriate, orange, or when quite young, white. Teeth rather short, thick, conical. Cystidia none. Spores white in mass, 3x4; hyaline, smooth.

This is one of the most brightly colored fungi we have, but it usually grows on underside of log so that it is easily overlooked. It is fairly common around Cincinnati, but Morgan never recorded it. The entire plant, subiculum and teeth, are bright orange. The subiculum is developed over long, orange mycelial strands. The host is sometimes colored orange, with the mycelial threads.

It is Sistotrema crocea of Schweinitz' description to the word. I found no specimens in his herbarium, and there are none in their place, if they occur. There are said to be specimens in some out-of-the-way place that are Phlebia radiata. The description does not apply to Phlebia radiata, and if there are specimens so labeled, it is due to some error. Underwood discovered it to be a "new species" and called it Hydnum chrysocomum, but Underwood knew precious little about American mycology. Berkeley probably has it named also, but I never looked up this section at Kew.

Old herbarium specimens of Odontia crocea lose all their bright color. There is no indication that the plant occurs in Europe, nor anything similar.

NOTE 185.—**Hexagona olivacea.** Pileus ungulate, in the type specimen scutellate. Surface smooth, even, pale, with a slight reddish tinge. Context hard dark olive (Dresden brown of Ridgeway). Pores large, 1½ to 4 mm. in diameter, rough, or irregular. Pore surface white, contrasting with the olive context. Cystidia none. Spores not found.

This is based on a single specimen received from Rev. James Wilson, Victoria, Australia. At first I referred it to Hexagona Gunnii, but on comparison I find it is entirely different. It is the only Hexagona I know with this context color. A section shows a thick (150 mic.) subhymenial layer of subhyaline hyphae, not forming subhymenial cells. The basidia are large, obtuse, forming a palisade layer. Cystidia none.

NOTE 186.—**Hydnum acre.** It has been recently stated that Hydnum acre is the same as Hydnum cristatum. I cannot agree to this. Hydnum cristatum is a synonym for Hydnum mirabile, a rare plant in Northern Europe, more common with us in the East, but comparison of undoubted specimens from Europe of Hydnum acre with Hydnum mirabile show them markedly different. The surface is entirely different, also the context, which in Hydnum acre is hard when dried and almost ligneus, while it is quite soft in Hydnum mirabile. I do not believe they are forms of one species.

ADDENDA.

The following have been received since the foregoing list was placed in the printer's hands:

ALLEN, MISS LIZZIE C., Massachusetts:
Stereum spadiceum.—Polyporus elegans.—Merulius Corium.—Polystictus pergamenus.—Tremellodendron pallida.—Polystictus versicolor.—Irpex cinnamomeus.—Stereum tabacinum.—Guepinia spathularis.—Polystictus conchifer.—Irpex lacteus.—Hydnum nigrum.—Polyporus subpendulus. (See Note 187.)

ARTHUR, J. C., Indiana:
Phallus imperialis.

BABCOCK, D. C., Ohio:
Septobasidium pedicellata.—Polystictus hirsutus.—Fomes rimosus.—Polystictus versicolor.—Stereum sericeum.

BALLOU, W. H., New York:
Fomes annosus.—Lenzites betulina.

BEARDSLEE, H. C., North Carolina:
Hydnum subsquamosum.—Hydnum. Unknown to me. Prof. Beardslee found it growing with Hydnum subsquamosum and considers it the advanced stage. That does not seem possible to me, but I cannot say to the contrary.—Hydnum amicum.

BELL, ALBERT T., Louisiana:
Scleroderma Cepa.—Scleroderma Geaster.

BLACKFORD, MRS. E. B., Massachusetts:
Fomes pinicola.—Fomes fomentarius.—Polyporus elegans.—Polystictus Montagnei (see Note 188).—Hydnum scobiculatum.—Hydnum laevigatum.—Hydnum nigrum.—Hydnum compactum var. cyaneotinctum (see Note 189).—Trametes carneus.—Hydnum aurantiacum.—Hydnum mirabile.

BONANSEA, DR. S., Mexico:
Morchella esculenta.—Panus.—Boletus.

BRENCKLE, DR. J. F., North Dakota:
Trametes hispida.—Fomes gilvus. An indurated Fomes form of Polyporus gilvus. I have it also from California.—Fomes fraxinophilus (see Note 190).—Daedalea unicolor.—Bovista pila.—Geaster mammosus.—Irpex lacteus.—Polystictus versicolor.—Polystictus zonatus.—Fomes Ohiensis.—Daedalea confragosa.—Polyporus adustus.

CLELAND, DR. J. B., Australia:

Polyporus ochroleucus.—Hexagona Gunnii.—Fomes.—Polystictus lilacino-gilvus? ?—Hexagona decipiens. An anomalous "Hexagona" with colored spores. Better classed as a Polystictus on its context and spore characters.—Trametes lactinea.—Trametes Feei.—Polyporus fumosus.—Polystictus elongatus.

DAVIS, SIMON, Massachusetts:

Polyporus brumalis.—Polyporus albellus.—Hydnum rufescens.—Helvella elastica.—Polystictus cinnamomeus.

DUTHIE, A. V., South Africa:

Calvatia lilacina.—Scleroderma Cepa.—Arachnion album (see Note 191).—Tylostoma. Characters not definite enough to refer specifically.—Radulum lirellosum.—Lycoperdon (sp.).—Lycoperdon umbrinum.—Hirneola auricula Judae.

FISHER, G. CLYDE, New York:

Calvatia lilacina.—Lycoperdon umbrinum.—Polyporus betulinus.

GRIFFIN, D. B., Vermont:

Polyporus brumalis.—Thelephora terrestris.—Favolus europaeus.—Polystictus simillimus. For me not distinct from Polystictus perennis.

HIBBARD, MISS ANN., Massachusetts:

Specimens were mostly collected in New Hampshire.

Stereum spadiceum.—Dacryomyces aurantia.—Phlebia strigoso-zonata (see Note 194).—Stereum hirsutum.—Polystictus Montagnei.—Polystictus versicolor.—Polystictus velutinus.—Polyporus cristatus.—Polyporus lucidus.—Stereum purpurascens (see Note 192).—Thelephora terrestris.—Thelephora palmata.—Polyporus spumeus.—Hydnum graveolens (see Note 193).

LANE, MISS ROSE, California:

Battarrea phalloidea.

LEEPER, B., Ohio:

Daedalea confragosa.—Lenzites betulina.—Fomes Ohiensis. Very large specimen of this little species, measuring 4½x2½ cm.—Polystictus biformis.—Polyporus fuscus.—Polyporus (Ganodermus) Curtisii (from Arkansas).—Polyporus brumalis.

LOWE, MRS. FRANK E., Massachusetts:

Polystictus pergamenus.

MORRIS, GEO. E., Massachusetts:

Polyporus Schweinitzii.—Polystictus Montagnei (see Note 195).—Hydnum coralloides.—Hydnum caeruleum.—Hydnum scobiculatum.—Hydnum imbricatum.—Cordyceps ophioglossoides.—Hydnum graveolens.—Hydnum fuligineo-violaceum.—Hydnum mirabile.—Hydnum Schiedermayeri.—Hydnum aurantiacum.

Polyporus caeruliporus. From Mrs. A. Wool, Montpelier, Vermont. Fine specimens of a very rare species, which seems to occur only in the

Northeast. This makes the fourth collection I have, two from Canada and two from New England.—Polyporus ovinus (see Note 196).

NOBLE, M. A., Florida:

Lentinus lepideus.—Lenzites rhabarbarina (see Note 197).—Scleroderma Cepa.—Scleroderma Geaster.—Lycogala Epidendrum.—Stereum fasciatum.—Stemonitis Smithii.

OLESON, O. M., Iowa:

Polyporus sulphureus.—Polyporus lacteus.—Poria ambigua.—Lenzites trabea.—Stereum sericeum.—Polyporus picipes.—Polyporus brumalis.—Tremella foliacea.—Fomes Everhartii.—Fomes leucophaeus.—Poria ambigua.—Stereum sericeum.—Poria pulchella.—Polyporus gilvus.—Stereum spadiceum.—Polyporus sulphureus.—Polystictus pergamenus.—Fomes fraxinophilus.—Polyporus lacteus.

OVERHOLTS, L. O., Missouri:

Polyporus alutaceus.—Hydnum scobiculatum.

RICK, REV. J., Brazil:

Stereum aurantiacum.—Cantharellus cinereus.

STOWARD, DR., Australia:

Polyporus gilvus (form Polyporus scruposus).—Scleroderma flavidum.—Scleroderma flavidum, very old, the exoperidium having split (as a Geaster) and revolute. The spore mass has entirely disappeared. Scleroderma flavidum is common in Australia, but rather rare, both in America and Europe. In reality it is only a form of Scleroderma Geaster, with thin, yellow peridium. When old, the peridium splits and recurves, as does the exoperidium of a Geaster. Young specimens are not distinguished with certainty from Scleroderma Cepa.—Scleroderma Cepa.

Trametes lilacino-gilvus. These are the finest specimens I ever saw. It is proving to be quite a frequent plant in Australia, but is unknown from any other country.—Polyporus gilvus.—Polysaccum pisocarpium.—Polyporus unplaced by me. Belonging to section Apus spongiosus. Recalls dimidiate forms of Polyporus rufescens, but spores not globose. Also (excepting as to color) recalls Trametes hispida, but here also spores different, about half the size. I believe it is unnamed. The spores (abundant) are 4x8, hyaline, guttulate, but mostly smaller.—Polyporus decipiens (Berkeley as Hexagona).—Hexagona olivacea.

NOTE 187.—**Polyporus subpendulus.** Sent by Miss Lizzie C. Allen, Newtonville, Mass. At least it answers the description to the word and I presume is correct. If it is correct, the specimen is probably a pigmy sport of Polyporus betulinus. The spores are 2½x5, about the same as those of Polyporus betulinus. The surface, context, color, pores are all the same. Incipient specimens of Polyporus betulinus normally have the pores little developed, while this has well-developed pores, but it is on the same principle that a dwarf may have a large head and a small body.

NOTE 188.—**Polystictus Montagnei,** from Mrs. E. B. Blackford, Boston, Mass. This has the reputation of being a rare plant, both in Europe and the United States, but I am getting more of it this season than ever before. I have specimens from Mrs. Blackford, Geo. E. Morris, and Miss Ann Hibbard, all from New England. This New England plant is thinner than the European form, and was called Polystictus cuticularis in one of my pamphlets. I am satisfied now, however, that it is better referred to the European species.

NOTE 189.—**Hydnum compactum var. cyaneotinctum,** from Mrs. E. B. Blackford, Boston, Mass. It appears to me that we have two Hydnums that have blue flesh, and each of them

can be divided into two forms. Hydnum suaveolens, a very fragrant plant with a hard stem not spongy tomentose, and no shade of orange. This can be subdivided into Hydnum suaveolens, the type form common in Europe with a colliculose pileus, and Hydnum caeruleum practically the same thing, but with an even pileus. My specimens of the latter are all from Canada.

Hydnum compactum, with the flesh turning blue when cut, but with a spongy tomentose pad at the base of the stem, which retains an orange shade in the dried specimens. The European form is compact, as shown in Schaeffer's Icones t. 146, the top even and the odor not so fragrant in fresh specimens. We have collected the type form in Sweden, and also have an American specimen from Miss Lizzie C. Allen, Massachusetts. The usual American collection, however, differs in having a thinner pileus, not "compact," and the tomentose pad at base of stem more pronounced. This American form was called Hydnum cyaneotinctum by Peck, and has been, by me and others, confused with Hydnum cearuleum (cfr. Note 69 and Note 84).

Specimens In My Collection.

Hydnum suaveolens.—Type form Sweden and France, C. G. L.; North Carolina, H. C. Beardslee; Massachusetts, Geo. E. Morris.

Form Hydnum caeruleum.—Canada, J. Vroom, Thos. Langton, John Dearness; France, M. Barbier; Sweden, Erik Haglund.

Hydnum compactum.—Type form from Sweden, C. G. L.; Massachusetts, L. C. Allen; North Carolina (?), H. C. Beardslee.

Form cyaneotinctum.—Massachusetts, T. L. Smith (3 collections), Mrs. E. B. Blackford (2 collections), Geo. E. Morris. I have it from no other State.

NOTE 190.—**Fomes fraxinophilus,** from Dr. J. F. Brenckle, Kulm, N. D. On Quercus macrocarpa. I am confident that this is the first collection on Quercus species. It usually occurs on Fraxinus in the East or Shepherdia in the West.

NOTE 191.—**Arachnion album,** sent by Miss A. V. Duthie, Stellenbosch, S. Africa. Miss Duthie sends an abundant collection and reports them "very common on the Stellenbosch flats in May and June." A curious case of plant distribution. Here we have a species of rare puff ball in United States, and only known from one collection in Europe, which is found "common" in South Africa.

NOTE 192.—**Stereum purpurascens,** received from Miss Ann Hibbard, W. Roxbury, Mass. As variety of Stereum cinerescens, Schw. Hymenium dark purplish. No plant is more common around Cincinnati than Stereum cinerescens, and it always has the hymenium pale with us. When I first looked at Miss Hibbard's specimen I was puzzled. Stereum purpureum is the only species I know with purple hymenium, and this did not appear to me to be this species. A section shows the large metuloids and spores of Stereum cinerescens, and it is without question a form. Morgan states that Stereum cinerescens "sometimes has a smoky or purplish tinge," but these specimens have a hymenium with more than a "purplish tinge." It is a distinct color, about the dark purple drab of Ridgway.

NOTE 193.—**Hydnum graveolens,** from Miss Ann Hibbard, W. Roxbury, Mass. The European identity of this plant is not settled to my mind, although undoubted types and cotypes from Delastre are at Upsala, Leiden, and Paris. I thought, when I examined them, that they were possibly Hydnum cyathiforme, an abundant species in Sweden, which develops fragrance in drying, although that fact is not mentioned in Fries' writings. And I have thought that getting the plant from Delastre (under the name fragans) was the reason it was considered by Fries as a species, knowing Hydnum cyathiforme from fresh plants (not fragrant) and graveolens from dried plants (fragrant). But our American plant does not suggest Hydnum cyathiforme to me as much as it does Hydnum amicum. I cannot understand Banker's recent reference of Hydnum graveolens as a synonym for Hydnum pullum, or Hydnum melaleucum as the legal name is now. While there is no doubt about the synonym of Hydnum melaleucum and Hydnum pullum in Europe as given by Fries, it is close to Hydnum nigrum, and I believe has been given somewhere recently as a synonym for Hydnum nigrum. Hydnum melaleucum in sense of English mycologists, according to specimens I have, is surely same as our American plant, but Hydnum melaleucum from Swedish collection is an entirely different thing and I think correct, agreeing with Schaeffer's figure, which our plant does not. I doubt also Fries' figure Icon, t. 6, f. 1, being same as Delastre's plant.

NOTE 194.—**Phlebia strigoso-zonata,** from Miss Ann Hibbard, W. Roxbury, Mass. Working with freshly collected material, I am unable to make out the basidia, but it is certain that they are not of the palisade type like Phlebia radiata. I see no organs that I think are basidia. The section is of fine hyphae and homogeneous, excepting that imbedded in the upper half are "gleocystidia," or probably ducts, that remind me of those one sees in Exidiopsis. They do not reach the surface. These stain dark with iodine. Below the layers, where the tissue is paler, are numerous, small, globose bodies of various sizes, not larger than six mic., which may be the basidia, but appear to me more in the nature of conidial spores. They do not stain with iodine. I am sure that the basidia are not as usual, but I think putting it in Auricularia is far fetched.

NOTE 195.—**Polystictus Montagnei,** from Geo. E. Morris, Waltham, Mass. This is a rare species. I am disposed to think now that the plant Mr. Morris sent me some time ago and which I named Polystictus cuticularis is better referred to this species.

NOTE 196.—**Polyporus ovinus,** from Geo. E. Morris, Waltham, Mass. Mr. Morris sends also a colored drawing which, together with the specimen, establishes this species in this country for the first time. It is quite a frequent species in Sweden, but the American specimens and records that I have noted are doubtful. There are American specimens in the

museums of Europe referred to Polyporus ovinus, but these are errors for Polyporus confluens. Polyporus ovinus when it is fresh is white, but in old specimens it takes on a reddish cast, and in Sweden we have sometimes difficulty in distinguishing Polyporus ovinus from Polyporus confluens. There is no trouble with the dried specimens, however, Polyporus ovinus turns dark gray or black in drying and confluens turns red, and the older it gets, the redder it becomes.

NOTE 197.—**Lenzites rhabarbarina,** from Mrs. M. A. Noble, Inverness, Fla. (as Daedalea), changed to Daedalea Berkeleyi by Saccardo, but unnecessarily, as it is a better Lenzites. In reality it is only a Southern, bright-colored form of Lenzites saepiaria, so common in Northern pine regions. It loses its bright color with old age, and the "type" could not be told to-day from old Lenzites saepiaria if one did not know its history. It grows usually, if not exclusively, on pine wood.

NOTE 198.—**The Genus Hypholoma.** This is another one of Professor Harper's excellent publications devoted to the Genus Hypholoma. The species are illustrated by a collection of photographs, which will prove most helpful to those persons working on the subject. Since Professor Peck has retired from the work there is a pressing need for some one to take up the work where he left it off. The three men whom I think are most actively engaged in it are Professor Edward T. Harper, Madison, Wis.; H. C. Beardslee, Asheville, N. C.; Simon Davis, Brookline, Mass. I often have inquiries for the address of some one to identify agarics. I do not know that either of these gentlemen would wish to engage in that work, but they are the only ones known to me who are giving the subject much attention, excepting Mr. Murrill, of New York. Mr. Murrill, however, has destroyed the usefulness of his work by formulating a private vocabulary that has no value to the general mycologist.

I am very glad to see Professor Harper sending out his work in printed form, and I hope our friends Beardslee and Davis will follow his good example. No matter how great the amount of work a man puts on a subject and how much he studies about it, unless he goes into print and makes his knowledge available to others, his efforts will amount to very little for the general good.

NOTE 199.—"Dear Mr. Lloyd: It is a pleasure to receive your recent letters (Nos. 48-52), and I thank you for them. By this time I suppose it is indisputable that you have seen more kinds and specimens of Polyporus than any other one man. I suppose also that this statement will be forever true. Consequently, we shall have to rely upon you to make no mistakes.

"I am always greatly entertained by your remarks about 'les petites affiches.' You certainly are unrelenting. But nevertheless I can't help thinking that the noting of authorities is useful, perhaps indispensable. They contribute to exactness of reference and of understanding. If the printing of them does tickle the pride of some who have little to be proud of, I think we may ignore their childish satisfaction. Children are proud to see their names on their underclothes. But the usefulness of such means of preventing mistakes outweighs the disadvantage of such incidental encouragement of human frailty. Can't you think so?

Yours sincerely,

"W."

I doubt if I can ever be convinced that a personal name has any connection with the name of a plant, or that a plant should be designated by other than the binomial representing the genus and its species. I feel positive that no other presumably scientific subject has been so carelessly, superficially, and inaccurately worked as has the subject of mycology, and I attribute much of this unfortunate condition to the custom of adding personal names to the names of plants. There might be some excuse for the prevailing custom if we had not a good model to follow. But as long as the best book ever written on mycology, namely, Fries' Hymenomycetes of Europe, did not consider it necessary to attach personal names to plant names, but restricted these entirely to bibliographical citations, I believe we should follow this model. I do not object to bibliographical citations. On the contrary, I think that in their proper place they are very useful; but they should be made in such a way as not to offend good taste.

While I may be unduly prejudiced in attributing to this custom the prevailing evils of mycology, I believe all will admit that the process constitutes its largest factor. Workers get a little smattering of the subject, and then proceed, often without knowing even the genera, to propose as "new species" everything they do not recognize. Others propose as "new genera" sections that no one else considers as other than sections of old genera, and then proceed to add their own names to countless species, without adding one iota (excepting further confusion), to the classification of the subject. One American writer recently had the nerve to add his name after 81 per cent of the plants he considered, while it is my belief, and I have given the subject close study, that he has not proposed a single new idea in connection with the classification, and I further believe that a number of the old principles he did not understand.

A few mycologists, none of them American, I am happy to say, have the most objectionable system of all. As a matter of sentiment, there might be some excuse for writing personal names after plant names, if the one who named the plant is dead, or even for tickling the vanity of a living writer, but it appears to us that the system of substituting one's own name for the names of those who originally named the species, as practiced by a few foreign mycologists, is thoroughly objectionable, being dishonest in principle.

The fact that I have corrected several mistakes of my own making is, I think, evidence that I cannot be relied upon not to make mistakes. The only man who never makes mistakes is the man who does not do anything. To err is human, and I know but one mycological worker who seems to believe himself infallible. Personally I do not so consider him, but believe that he, like the rest of us, makes mistakes. However, I feel that for the good work he has accomplished he is entitled to so much credit that I am not disposed to quibble over minor failings. No one is perfect, every one has his faults, every one makes mistakes. But the greatest mistake a man can make is not to recognize that he himself is capable of an error.

LETTER No. 54.

Report of specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
95 Cole Park Road,
Twickenham, England.

Cincinnati, Ohio, January, 1915.

ABBOTT, E. K., California:

Polystictus circinatus.—Boletus edulis. American form which is paler and more yellow than the European form.

AMES, F. H., New York:

Fomes (Ganodermus) leucophaeus.—Polyporus adustus.—Polyporus spumeus?—Peziza floccosa.—Stereum hirsutum(?)—Polyporus lucidus.—Polyporus elegans.—Hydnum septentrionale.—Polystictus versicolor?—Polystictus circinatus.—Lycogala Epidendrum.—Daldinia concentrica.—Irpex lacteus.—Hypocrea (very??)—Stereum Oakesii.—Tremellodon gelatinosum.—Calvatia elata.—Thelephora mollissima. (See note 200.) Poria undata.—Poria pulchella.—Poria mutans.—Polystictus variiformis. (See Note 201.)—Polyporus (Ganodermus) sessilis.

BALLOU, W. H., New York City:

Polystictus ochraceous. form albida.—Hydnum Schiedermayeri.—Irpex cinnamomeus.—Phlebia radiata.—Polystictus conchifer.—Polystictus pergamenus.—Polyporus fumosus.—Polyporus dichrous.—Trametes sepium.—Polyporus betulinus.

BETHEL, E., Colorado:

Geaster Schmidelii.—Polysaccum crassipes.—Polysaccum pisocarpium.—Geaster triplex.

BLACKFORD, Mrs. E. B., Massachusetts:

Poria tulipifera.—Poria contigua.—Polystictus aurantiacus.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES
JAN 2 0 1942

DEARNESS, JOHN, Canada:
Poria inermis.

DUTRA, J., DR., Brazil:
Tramates hydnoides.

EASTWOOD, MISS ALICE, California:
Lycoperdon umbrinum.—Also four Boletus and four Agarics which I cannot determine from dried specimens.

KAUFFMAN, DR. C. H. (Mostly from Adirondack Mts., N. Y., and Michigan):
Polyporus albellus.—Polyporus mollis.—Polystictus perennis.—Fomes scutellatus.—Fomes nigricans.—Polystictus pubescens.—Polystictus velutinus.—Lenzites sepiaria.—Poria laevigata.—Poria medulae-panis.—Poria prunicola.—Poria betulina.—Poria cinerea.—Hydnum scobiculatum.—Hydnum cyathiforme.—Phlebia strigoso-zonata.—Phlebia merismoidea.
Asterodon ferruginosum. (See Note 202.)—Hypochnus vaga.—Merulius pulverulentus.—Poria rufa.—Fomes igniarius.—Polyporus gilvus.—Trametes protracta.—Polystictus pergamenus.—Polyporus spumeus.—Polystictus zonatus.—Irpex lacteus.—Trogia crispa.—Phlebia radiata.—Hydnum ochraceum.—Odontia crocea.—Caldesiella ferruginosa.—Polyporus lacteus.—Polyporus crispellus.—Polyporus floriformis.—Porothelium fimbriatum.—Peniophora gigantea.—Poria ambigua.—Poria purpurea.—Hydnum albonigrum.—Polyporus fumosus.—Trametes hispida.—Hydnum strigosum. (See Note 203.)—Polyporus glomeratus. (See Note 204.)—Fomes igniarius.—Polyporus osseus.—Polyporus croceus. Also a number of resupinate species, to me unknown.

PECKOLT, GUSTAVO, Brazil:
Lenzites repanda.

TORREND, C., Brazil:
Poria tulipifera.—Stereum cfr. spadiceum.—Polyporus adustus.—Poria graphica.—Stereum membranaceum.—Merulius Corium.—Polystictus camphyloporus.—Polyporus scruposus.—Polystictus membranaceus.—Polystictus villosus.—Polystictus occidentalis.—Stereum (Hym.) tenuissimum.—Stereum Leveilleanum.—Polyporus (Amaurodermus) omphalodes.—Polyporus Chaperi.—Fomes applanatus.
Trametes pruinata, as named by Rev. Torrend.—Trametes citrina, as named by Rev. Torrend.—Polyporus Torrendii. (See Note 205.)—Polyporus submurinus.—Polystictus membranaceus.—Fomes pseudosenex.—Hypolyssus clavarioides. (See Note 206.)—Fomes senex.—Polystictus caperatus.—Polyporus licnoides.—Polyporus mutabilis. (See Note 207.)—Trametes cupreo-rosea.—Polyporus Guyanensis.—Polyporus pseudo-fruticum. (See Note 208.)—Polyporus adustus.

From S. Thome, Africa: Polyporus umbilicatus. (See Note 209.)—Fomes pectinatus.—Trametes pavonia.

From India: Hexagona polygramma.—Stereum (Hym.) tenuissimum.—Irpex concers.—Polystictus elongatus.

From Madagascar: Polyporus pruinatus.—Polystictus cryptomeniae.

WILDER, MRS. CHARLOTTE M., California:

Crucibulum vulgare.—Poria carbonaria.—Hydnum nigrum.—Cyathus stercoreus.—Stereum vellereum.—Cantharellus cibarius.—Clitocybe laccata.

YASUDA, A., Japan:

Radulum molariforme, Pers. Myc. Europ. Tab. 22, fig. 1 (= Radulum molare Fr.). I do not know Radulum molare in Europe, but this seems exactly same as Persoon illustrated. I have seen and photographed the type in Persoon's herbarium, but never studied it. The photograph seems same as this. Gillet's and Cooke's figures have no resemblance to it.

Stereum princeps.—Polystictus affinis. (See Note 210.)—Polyporus (Ganodermus) oregonensis. (See Note 211.)—Polystictus polyzonus.—Polyporus versisporus. (See Note 212.)—Polyporus Yoshinagai. (See Note 213.)—Polyporus Mikawai. (See Note 214.)—Polystictus dependens. (See Note 215.)—Naematelia Japonica. (See Note 220.)—Polyporus Cantharellus. (See Note 221.)—Polystictus velutinus, form glaber.—Nidula microcarpa.—Hydnum (unnamed).—Stereum (Hym.) rubiginosum.—Stereum frustulosum.—Pseudocolus Archeri.—Hydnum albidum.—Cudonia japonica, as named by Prof. Yasuda.—Thelephora papillosa. (See Note 222.)—Bovistella (probably unnamed).—Pleurotus nidulans.—Marasmius siccus.—Otidea auricula.—Melanogaster (sp.).—Isaria (unnamed). (See Note 223.)— Stereum (Hym.) tenuissimum.

NOTE 200.—**Thelephora mollissima,** from F. H. Ames, Brooklyn, N. Y. A very rare plant in the United States and does not appear in Burt's recent paper. The young growth is white, contrary to all other Thelephoras, I believe, and remains white in drying. It grows only in frondose woods, never in pine woods. Specimens are in Persoon's herbarium and a better one from Persoon in Montagne's herbarium. I found it in the University park at Upsala and it is Thelephora intybacea in sense of Fries (not Burt). It agrees with Fries' description and habitat. It is Thelephora atrocitrina for Quelet, who took Thelephora intybacea in sense of a Stereum. While we are certain that this is Thelephora mollissima as to Persoon's specimens, we think not as to his description. In fact, we believe that Berkeley had Thelephora mollissima right, and that it is same plant that Burt refers to Thelephora spiculosa. We are sure that Mr. Ames' plant is Thelephora intybacea in sense of Fries and probably in sense of Persoon originally. We will probably adopt the name Thelephora intybacea for the plant, though it will cause some confusion in American mycology, where the name has been applied in all our traditions to a quite different plant, which we believe does not grow in Europe.

NOTE 201.—**Polystictus variiformis,** from F. H. Ames, Brooklyn, N. Y. This is a rare plant and Mr. Ames is the only correspondent from whom I receive it in the East (cfr. Note 117). It varies much, as its name infers, and Mr. Ames sends pileate and resupinate forms. Peck comments on the same fact. It is surely same plant that Murrill calls Polystictus hexagoniformis, under which name I have a fine collection from James R. Weir, Idaho. I believe it will prove in time to be a polyporoid form of Lenzites heteromorpha, a rare plant of Sweden, and also Trametes subsinuosa, recently described in Europe. All these plants are pure white, have large pores, varying resupinate or pileate, pores varying round to elongated. The spores 5 x 10 are opaque, hyaline, and same in all specimens I have examined. The plant is so variable it was stated by Peck to be ambiguous between Polystictus, Daedalea, and Trametes. The pileate forms are thin and would more likely be sought in Polystictus. The resupinate forms have rigid pores and ordinarily would be classed as Trametes.

NOTE 202.—**Asterodon ferruginosum,** received from Dr. C. H. Kauffman from the Adirondack Mountains, N. Y. (Syn. Hydnochaete setigera.) This is the first American specimen I have gotten, although I have some type material from Europe through kindness of Patouil-

lard. The genus with its peculiar spiny, stellate hyphae tissue corresponds to Asterostroma in the Thelaphoraceae. The genus Hydnochaete, to which Peck referred the plant, if it is maintained, is cogeneric with our common Irpex cinnamomeus, being simply a Hydnaceous plant with setae on the hymenium, the "Hydnoporia" of Murrill's delayed discovery.

Asterodon ferruginosum is not a synonym for the more common Hydnum ferruginosum of Europe and United States, which has tubercular colored spores, and is now called Caldesiella. The original specimen was found mixed in a collection of Hydnum ferruginosum, and it is confusing and unfortunate that the same specific name was adopted.

NOTE 203.—**Hydnum strigosum,** received from Dr. C. H. Kauffman, from Michigan. A very rare plant and this is the first specimen I have received from an American correspondent. I collected it once in Michigan. This is the plant with which Banker made the most comical bull that was ever made in American mycology. He identified it with a mislabeled specimen of Polyporus hispidus in Schweinitz' herbarium and wrote a page article in his "Revision of Hydnaceae" (sic) based on a Polyporus (sic). Then, when he found the specimen which both Peck and Ellis had correctly determined as being Hydnum strigosum, Banker discovered that it was a "new genus" (sic) and a "new species" (sic).

Hydnum strigosum is as variable as it is rare. This specimen from Dr. Kauffman is dimidiate with stratose flesh a cm. thick. Those I collected were stipitate, with very thin flesh. In addition it has also been found resupinate, and named Hydnum stratosum by Berkeley. Notwithstanding its variations there is no mistaking it. It has a "structure" peculiar. The alternate stratae are composed of compact and loose brown hyphae, the latter loosely woven into coarse bundles. The spores are subglobose, 4 mic. smooth, transparent, guttulate.

Hydnum strigosus is both rare and boreal in both America and Europe. With us it is known from Michigan, New York, Nebraska, Iowa, Indiana, and Ohio, but always rare. In Europe it is only known from Swedish specimens, and northern Sweden at that.

NOTE 204.—**Polyporus glomeratus,** received from Dr. C. H. Kauffman, from Michigan. The first specimen I have ever gotten and of much interest to me. This species has been confused by Murrill and myself with Polyporus radiatus, which it resembles in general appearance. There is a small cotype specimen at Kew, and in studying it last winter I made the discovery that its structure, which is exceptional among the polypores, was entirely different. Imbedded in the tissue of the pores are large, thick, deeply colored, long, cylindrical bodies. Similar bodies are found in the tissue of several foreign species, Fomes pachyphlaeus of the East, Polyporus Rickii of the American tropics, but we have in the United States, as far as known, no other species with this character.

The specimen was sent as a Fomes, and the layers are quite evident, but I think it is better classed as a Polyporus, for it is apparently an annual, the old layers being dead, and the new growth forming over them, but distinct, and not continuous. In its texture it is the same as such annual species as Polyporus radiatus.

A small fragment such as I have heretofore seen closely resembles Polyporus radiatus, but not this specimen. It grew on Acer encrusting logs for several feet and resupinate, also pileate on stumps. The fresh pores are greenish yellow, the old pores brown. Setae none found on the hymenium. Spores subglobose, 5-6 mic., very pale color, transparent, guttulate. Polyporus glomeratus was named over forty years ago, and we have just gotten a clear idea of it. It is very close to Polyporus Rickii of the American tropics, which may be a conidial bearing form of same thing.

NOTE 205.—**Polyporus (Amaurodermus) Torrendii.** Pileus orbicular, reniform, about 3 cm. in diameter, dark reddish brown, darker when old, the edges when young chestnut red. Stipe lateral, 6 cm. long, 3-4 mm. thick, with dull reddish brown velutinate surface. Pores large, 1-2 to mm. long, (1 cm.) almost reaching the crust. Spores smooth, colored, varying globose 12 x 12, to subglobose, 12 x 14, some 10 x 14 mic.

This is a unique species, which should be included in Section 5, Amaurodermus, of our Stipitate Polyporoids. It differs from all species heretofore known with smooth spores in its large pores. It is quite close to Polyporus insularis of New Caledonia, which has rough spores. The type specimens were received from Rev. C. Torrend, Bahia, Brazil.

NOTE 206.—Hypolyssus clavarioides, from Rev. C. Torrend, Bahia, Brazil, and named Telephone clavarioides by him. A unique and novel thing, but I would put it with Hypolyssus rather than to multiply the genera. I presume Telephone is a new genus. It is something out of the ordinary, at any rate. I believe it has not yet been published.

NOTE 207.—Polyporus mutabilis, from Rev. C. Torrend, Bahia, Brazil. Sent as subhydrophilus, Speg. I do not know the latter, but if so, surely a synonym for Polyporus mutabilis, which is common in our southern United States.

NOTE 208.—**Polyporus pseudofruticum.** Pileus dimidiate, ungulate. Context dual, the old hard and ligneous, the young soft and spongy. Surface soft. Color of old context cinnamon brown, of the new growth, yellow ocher. Setae none. Spores 2½ x 3½ hyaline, smooth.

The old context is harder, but the young is same spongy nature as Polyporus fruticum. Were it not for the hyaline spores, it would be referred to fruticum. This is probably a better Fomes, and so is Polyporus fruticum at times. Notwithstanding the discrepancies of spore colors, I think better classed as a form of Polyporus fruticum. Specimen from Rev. C. Torren, Bahia, Brazil.

NOTE 209.—**Polyporus umbilicatus,** received from Rev. C. Torrend, from S. Thome, Africa. Two specimens of same collection, one with minute pores, the other medium large pores. The latter runs close to brumalis, but has smooth, rigid pileus.

NOTE 210.—**Polyporus affinis,** sent by A. Yasuda, Sendai, Japan. The stipitate, glabrous specimens are typical, but of the same collection are subsessile, slightly pubescent specimens which I would refer to subsessile Polystictus flabelliformis if they were sent alone, as I referred a collection from J. Umemura. The entire section "Microsporus" grades into each other so there is no drawing a line between species.

NOTE 211.—**Polyporus (Ganodermus) oregonenssis,** sent by A. Yasuda, Sendai, Japan. Although this specimen is young and undeveloped, it is surely same as grows common in our Northwest United States on hemlock, the same host as Prof. Yasuda finds it in Japan. It has same characters, exactly as Polyporus lucidus, excepting that the stipe is in the same plane as the pileus, and it is a much larger and more obese plant. I have abundant specimens from Mr. Weir, Idaho.

NOTE 212.—**Polyporus versisporus.** Pileus ungulate, dimidiate (about 2 x 4 x 2 cm.). Surface with a reddish stain, hard but no distinct crust. Context pale isabelline, hard. Pores minute, 8-10 mm. long. Cystidia none. Spores cylindrical, 4 x 8-10, hyaline, straight.

Based on a collection (251) from A. Yasuda, Prov. Tosa, Japan. In general resemblance so close to Polyporus ochroleucus that I at first took it to be this species, same shape, size, context, and general coloration, though darker. On comparison the pores are more minute, but the main difference is in the spores, which are of an entirely different type, shape, and size. This species will be included in Section 82a of my Synopsis of the Genus Polyporus now in MSS.

NOTE 213.—**Polyporus Yoshinagai.** Pileus thin, rigid, incurved in drying, cuneate, reduced at base to a small attachment. Surface glabrous, dark reddish brown, faintly zonate. Context pale, very thin, less than 1 mm. Pores minute, 1-2 mm. long, rigid, pale, with concolorous mouths. Spores not found.

Based on a collection (1910) by T. Yoshinaga (No. 5) from Mt. Yokogura, Prov. Tosa, Japan. Also recently received from A. Yasuda, Prov. Tosa, Japan (No. 255). The plant should be classed in Petaloides, Section 15, though the pores and context and general rigidity of the plant recall Polyporus rigidus, from which it differs by its attachment and surface color.

NOTE 214.—**Polyporus Mikawai.** Pileus thin, brittle, rigid, white (3 x 4 cm. x 2 mm.) petaloid, with a short tubercular stipe. Surface glabrous, faintly lined. Pores small, round or slightly favoloid, decurrent. Spores abundant, 3½ x 10, cylindrical, straight.

Based on a collection (250) Prov. Mikawa, Japan, from A. Yasuda. There is no indication of any blackening of the stipe, but as to the pileus, texture, size, color, close to Polyporus elegans. The pores are larger, and the short, tubercular, uncolored stipe entirely different. We would enter it in Section 13, Petaloides of Stipitate Polyporoids.

NOTE 215.—**Polystictus dependens,** from A. Yasuda, Sendai, Japan. This little species is very rare in the southern United States. (Compare Myc. Notes, Pol. Issue, page 13, fig. 207) and this is the first foreign collection known. Prof. Yasuda sends an ample collection, more than I have heretofore gotten. The Japanese plant has larger pores and slightly larger spores (6 x 9) than our American plant, but surely the same peculiar species.

NOTE 220.—**Naematelia Japonica.** Globose (1½-2 cm.), plicate rugulose, pale yellow, consisting of pale, almost white, gelatinous layer, 1 mm. thick, surrounding a deep yellow more fibrillose core. Basidia globose, 16 mic., pale yellow, usually with several large guttae. Spores subglobose, hyaline, 10 x 12 mic., with thick walls and granular contents.

Based on a collection (281) from A. Yasuda, Japan. It is the Japanese analogue of Naematelia encephala of Europe and the United States, and might be considered a large form of it. It is larger, several times the size, and the core is softer and deeper yellow. There is a disposition of modern authors to neglect the genus Naematelia and, it having the same basidia, to unite it with Tremella. The heterogeneous nature of the tissue of Naematelia is for me a good generic character and entirely different from the homogeneous nature of a Tremella.

NOTE 221.—**Polyporus Cantharellus.** Pileus mesopodial (rarely pleuropodial), thin, fleshy, depressed, or infundibuliform. Surface smooth, grayish brown. Flesh thin, fragile, white. Pores white, medium, shallow, decurrent to very base of stem. Spores globose, 5-6 mic. hyaline, transparent, guttulate, smooth.

This is close to Karsten's figure of Polyporus tubaeformis (p. 10, fig. 53), but Karsten's plant has a dark stipe and belongs to Melanopus, otherwise the figure well represents the Japanese plant. Karsten gives no spore characters, and no specimen of his plant is in any museum that I have visited. Though small, I would class Polyporus Cantharellus in section 39 Ovinus. Specimen (259) from A. Yasuda, collected at Sendai, Japan.

NOTE 222.—**Thelephora papillosa.** Pileus (apparently) with a central stem, infundibuliform, lobed, thin, coriaceous dry texture. Context white. Upper surface pale, smooth, slightly brownish. Hymenium dark, distinct from the context, papillate with well formed papillae (about 75 x 250 mic.) which are permanent. Cystidia none. Spores pale colored, angular-globose, 8 mic. tuberculate.

Based on a half specimen (270) from A. Yasuda, Mikawa, Japan. The habitat not stated. It appears to have had a short stem which was enlarged above, the cup-shape pileus adnate and prolonged above the stem. There is no analogous species in Europe or America, in fact it could be made a new genus based on the white context of the hymenophore, different from the hymenium and the distinct, well formed papillae, and it might be classed in the Hydnaceae. However, the spore character is typically that of Thelephora, and one European species (T. terrestris) has a blunt, granular hymenium. I think it better to stretch the limits of the genus to include it than to multiply the genera.

NOTE 223.—**Isaria** (unnamed), received from A. Yasuda, Japan. This is what passes in Japanese literature as "Isaria arachnophila Ditm." and a bad misdetermination, for Isaria arachnophiia is a little species not 2 millimeters long, and this is a large club-shape specimen 6 centimeters or more. It is an example of what errors can be made in naming fungi from descriptions. The species should be renamed, for it is something unique. It grows on a large spider, or the specimen looks to me more like a cocoon. It is compact and has a general resemblance of being a Cordyceps, but the spores are conidial. I do not know of any other Isaria that has any resemblance to it. It was sent as a "conidial form of a Cordyceps," but no Cordyceps corresponding to it has been named from Japanese material and I doubt if the connection can be traced. It is assumed generally that conidial bodies on insects are conidial forms of Cordyceps, but in most cases it is principally a deduction. Tulasne was quite positive that Isaria farinosa is a conidial form of Cordyceps militaris, which De Bary at first disputed and then virtually admitted. I am under the impression it has been demonstrated recently in the laboratory. They are different phases of the same fungus, but the Isaria form does not change into the Cordyceps form. They are developed under different conditions from the host.

ADDITIONS.

The following specimens have been received since the preceding list was sent to the printer:

BURNHAM, STEWART H., New York:

Irpex lacteus.—Calocera cornea.—Lycoperdon piriforme.—Polyporus pubescens.—Phlebia strigoso-zonata.—Polyporus lacteus. In sense of Note 148, Letter 49. This is the finest collection I ever saw.—Polyporus delectans. —Lycoperdon atropurpurea.—Dacryomyces deliquescens.—Lycoperdon piriforme var. tessellatum.—Irpex sinuosa.—Polyporus albidus.—Polystictus Grayii.—Irpex tulipifera.—Naematelia nucleata.—Polyporus albellus.—Phlebia radiata.—Poria aurantiaca.—Poria undata.—Poria ferruginosa.

DEMETRIO, C. H., Missouri:

Odontia. Species unknown to me.

HIBBARD, MISS A., Massachusetts:

Hydnum reticulatum (See Note 224).

HOUSE, H. S., New York:

Trametes piceina (See Note 225).

LATHAM, ROY, New York:

Exidia glandulosa.—Phlebia radiata.

NELSON, N. L. T., Florida:

Trametes hydnoides.—Hydnum ochraceum.—Polyporus (Ganodermus) lucidus. — Schizophyllum commune. — Geaster hygrometricus.— Stereum cuneatum (see Note 226).—Polyporus supinus.—Polystictus versicolor.—Lentinus villosus.—Stereum complicatun.—Lentinus strigosus.—Polystictus pergamenus.—Polystictus Friesii.—Polystictus sanguineus.—Hypochnus rubro-cinctus.—Stereum lobatum.—Polystictus versicolor.—Polystictus hir-

sutus.—Stereum bicolor.—Polyporus gilvus.—Fomes marmoratus.—Hirneola auricula Judae, "Jew's ear."—Daldinia concentrica.—Lenzites betulina.—Pleurotus nidulans.—Trametes lactea.—Polyporus obtusus.—Stereum lobatum.—Stereum bicolor.—Polystictus sanguineus.—Polystictus Friesii.—Fomes leucophaeus.—Trametes cubensis.—Trametes rigida.—Stereum ochraceoflavum.—Polyporus poculus.

OVERHOLTS, L. O., Indiana:
Fomes nigricans.

WOLF, F. A., Alabama:
Merulius lacrymans.

NOTE 224.—**Hydnum reticulatum.** Sent by Miss A. Hibbard, W. Roxbury, Mass. The first specimen I have received and, according to the records, the second collection known. It is a most peculiar species and entirely reverses the usual ideas of Hydnums and their spores. Many Hydnums have angular, tubercular, colored spores, others even, smooth, or asperate hyaline spores, but this stands alone in having angular, tubercular, **hyaline** spores. It demonstrates that the old Friesian genus Hydnum, on macroscopic characters, is far less embarrassing and more **natural** than the new fangled ideas of breaking it up into "genera" on spore characters, to say nothing of the confusion introduced by a jargon of new names.

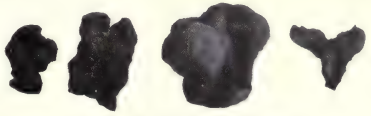
Miss Hibbard collected the plant while on a visit to Nova Scotia, and was impressed when she gathered it that it was something unusual in the Hydnum line. The plant now is wood brown, the dried flesh paler isabelline. Miss Hibbard states, "I remember it grew in troops and that there was white on the pileus when fresh, but the pileus was not wholly white." The species is also unusual among Hydnums in having flattened decurrent teeth that in the dried specimens mostly remain pale at the apex. It was named from the teeth being united at the base to form a kind of reticulation, a minor feature, and the author could have given it a much better name had he appreciated its strong peculiarities.

NOTE 225.—**Trametes piceina,** from H. D. House, State Botanist, Albany, N. Y. Seven collections, including some type material of Peck. This plant has been held by Von Schrenk as same as Trametes Abietis of Europe as a variety of Fomes pini. While very close, our American plant has minute pores and the European plants large, usually daedaloid pores, and this, in my opinion, is a difference sufficient enough to maintain them as distinct.

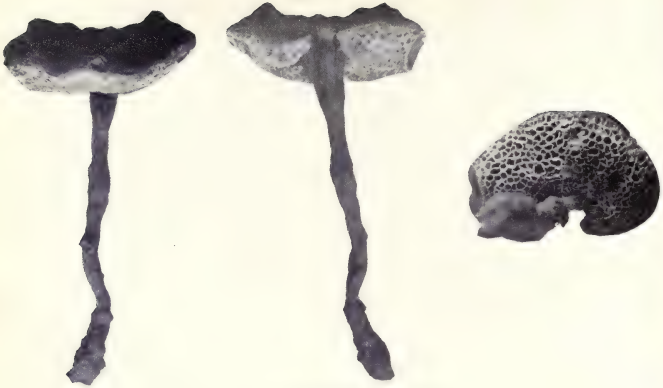
NOTE 226.—**Stereum cuneatum,** sent by N. L. T. Nelson, Gainesville, Florida. Pileus cuneate, tapering to the base (2 cm. high), cut into a few fimbriate segments. Surface pale, smooth. Hymenium unilateral, pale yellow (Honey yellow of Ridgway), smooth. Cystidia none. Spores globose, 3½-4 mic. hyaline, smooth. The plant grows densely caespitose in the earth, from a common mycelial base. It belongs in Section 7 of my recent pamphlet on Stipitate Stereums, and is the first addition to these plants I have gotten since the pamphlet was written.

NOTE 227.—**Poria Weirii.** Pores very minute round, perennial, stratified, 5-7 mm. long. Color cinnamon-brown. Subiculum thin, soft, spongy, concolorous, forming a narrow margin. Setae numerous, long, deep colored, imbedded in the tissue of the pore walls, the sharp ends projecting into the pores 30-40 mic. Spores not found, surely hyaline.

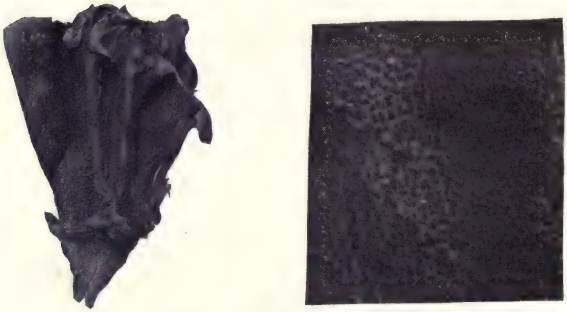
This is a large brown species, common and forming large patches on Thuja in our Western States. It is loosely adherent to the host. The structure is very peculiar, and the only other native polyporoid with similar structure known is Polyporus glomeratus. The "genus" Oxyuria was based on this structure (cfr. Synopsis Fomes, page 261). This is the only Poria I have ever noted belonging to this section. The original species known belonging to this section was Fomes pachyphloeus of the East (cfr. Synopsis Fomes, fig. 600). In that species the large, imbedded setae do not project into the pores as they do in Poria Weirii.



Naematelia Japonica (Note 220).



Polyporus Torrendii (Note 205).



Thelephora papillosa (Note 222).
Plant (natural size) and hymenium (X6).

LETTER No. 55.

By C. G. LLOYD, Cincinnati, Ohio, March, 1915.

OVERHOLTS' POLYPORACEAE OF OHIO.

There appeared about one year ago in the Annals of the Missouri Botanical Garden (March, 1914), a paper by L. O. Overholts on the Polyporaceae of Ohio. We have seen notices of the paper, but as a separate issue was not sent to me, and as I was not favorably impressed with a previous paper by the same author, I did not take the trouble to go over to the library and look it up. It has therefore really just come to my attention and I was agreeably surprised to find it to be a very valuable and true presentation of the subject, and I am gratified that Mr. Overholts has gotten back into the realms of rational mycology. I presume this is due to the conservative influence of Professor Burt. In his previous paper he was no doubt largely influenced by Professor Bruce Fink, who does not know enough about fungus to form an opinion of the merits of such things, and Overholts' previous nomenclature was about as intelligible as a Chinese laundry ticket.

The present paper I consider the best and most valuable paper on the classification of our native Polyporaceae that has yet been printed. The names used are the usually accepted names for the plants, and the articles impressed me as being well and accurately drawn up. They are original descriptions, drawn in most cases from the growing plants, and if I were publishing a work on American Polypores I should probably use them bodily, of course, giving due credit. Mr. Overholts records and describes 105 species, and while the paper is restricted to those occurring in Ohio, the fungi are such widely distributed plants that it is practically a manual of the fungi of the United States. There are relatively few of our native plants that are not included. Mr. Overholts has employed the names that are currently used in American mycology, corrected in some cases as a result of recent historical studies, and it is gratifying that so many species finally take definite shape so the names mean the plants. If mycology ever reaches the stage where a binomial will have some definite meaning, then the greater part of the trouble will have passed away. The excellent work that is being done by Professor Burt at the Missouri Botanical Gardens on the Thelephoraceae and by Mr. Overholts on the Polyporaceae gives promise that this may some day be reached.

Of the 105 species that Mr. Overholts has described we would have no criticisms or suggestions to offer as to most of them. There are a few species for which Mr. Overholts has used American names that are exactly the same plants as grow in Europe, and while Mr. Overholts has given the current American names, having, of course, no way of knowing regarding the foreign plants, it is only a question of time when in our American mycology they will acquire the same names as in Europe. We append a list of a few corrections we would make, as follows:

UNIVERSITY OF CALIFORNIA

The following names in American traditions are applied to plants which grow in Europe and have established European names. In time the European names will prevail.

guttulatus = alutaceus of Europe.

pennsylvanicus=pallidus. (not sure.)

flavovirens = cristatus.

Pilotae = croceus.

dryophilus=rheades, or corruscans, if the oak form is held distinct.

obesus=Montagnei.

fulvus = pomaceus.

Peckii = hispida.

vialis=trabea, although the American name is more sure than the European.

Polystictus Lloydii is not a valid name. It is too close to Polystictus Grayii, usually referred as a variety of pubescens, but for me a distinct species.

semipileatus is a synonym for semisupinus.

zonalis is the unzoned form, called Polyporus rigidus by Leveille.

nidulans is a synonym for rutilans, and as Persoon gave such a good illustration of it there was no excuse whatever for Fries to rename it. According to "Law," however, Fries is the only man who can make blunders and then have them legitimatized.

lobatus is only a juggle for reniformis, and doubtfully correct even for juggling purposes.

conchoides is not same as dichrous, but a tropical form that does not occur in Ohio. The hymenium is pale flesh color, never the dark reddish purple of our northern plant.

rubellus is a synonym for Merulius incarnatus, and no excuse for it, as Schweinitz left good specimens in several museums.

Three plants known in American traditions, viz., carneus, picipes, and resinosus, are surely wrong, but there being no correct names for them, the names will probably prevail. They should be cited, however, as "American traditions," not Nees, Fries, etc. I shall use carneus and picipes, but resinosus is not only wrong and missapplied, but so absurd to employ it for a plant that has no suggestion ever of being resinous, that I will use a Persoonian name, Polyporus fuscus, which may have been the same plant in part, at any rate not a bad name for it.

The white species have always been the difficult part of Polyporus study, and it is impossible to reconcile all conflicting evidence. As two different schools, Romell and Bresadola, are positive that two different plants are chioneus, I shall compromise the dispute by accepting neither, and use Peck's name albellus, about which there is no question.

Polyporus lacteus, in sense of Overholts, I have decided is Polyporus trabeus, one of Fries' "lost" species. It is another species about which no two investigators will agree on the evidence.

With these few exceptions, I believe Overholts' paper is strictly correct, and, as the truth, will finally prevail. It is the only paper that has yet appeared on American Polypores that is reasonably accurate, and the only paper of much value.

Polyporus (Ganodermus) gibbosus.

(Crowded out of our pamphlet on Stipitate Polyporoids.)

GIBBOSUS (Fig. 627).—When Nees published his paper on Java fungi in 1826, he illustrated two plants that evidently belong to the stipitate section Ganodermus. I think no one has hunted up

Fig. 627.
Ganodermus gibbosus.

Nees' types, which are probably at Strassburg if they exist. One of Nees' species, Polyporus Cochlear, Fries referred to Polyporus Amboinensis, and although it appears to me to have little resemblance to the original figure of this species, it has since generally passed as

a synonym for this species. Recently Bresadola, in working over the Java fungi at Leiden, referred to Ganodermus Cochlear, a plant that seems to be common in Java and which we have received from Dr. Konigsberger (cfr. Stip. Polyporoids, page 103). We accepted the name Cochlear for this species, although we do not believe it is the same as Nees illustrated particularly as to the *stipe*.

The other species that Nees named Polyporus gibbosus, Fries (from the picture) considered a valid species, and it therefore passed into our literature and is compiled in Saccardo (Vol. 6, p. 156). I can not see any marked difference between Nees' figure of Cochlear and gibbosus, and I believe it will develop that both are the same plant. I have received a plant from C. B. Ussher, Java (Fig. 627) that appears to me to be exactly the same as Nees illustrated under these names, and I have also young specimens from Dr. Konigsberger. I shall use the name Ganodermus gibbosus for this plant and in this sense quite different from the plant Ganodermus Cochlear in the sense of Bresadola.

Ganodermus gibbosus in this sense has a very peculiar lateral, gibbose stipe (see Fig. 627) as characteristically shown in Nees' figure. With the exception of the stipe, however, and the fact that the pores are not stratose, in all its "structural" characters, viz., surface, color, crust, context color, pores and pore mouths, it corresponds to Fomes leucophaeus. The spores (in this specimen) are smaller (not over 8 mic. long) than those of the American Fomes leucophaeus, but I do not attach much importance to the exact size of spores. It could be considered, of course, an annual, stipitate form of Fomes leucophaeus, but in the United States, where Fomes leucophaeus is the most common species we have, it never takes a normal stipitate form. Sometimes Fomes leucophaeus takes a false stipe when growing under abnormal conditions, but I believe that the stipe of Polyporus gibbosus is a normal feature of the plant. The specimens I have are Polyporus, but it may be a Fomes when it gets older. It is quite close to Fomes testaceus of the Synopsis Fomes which, however, has always a peculiar brown surface color, and a regular stipe.

LETTER No. 56.

Report of specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. Lloyd,
224 West Court St.
Cincinnati, Ohio.

C. G. Lloyd,
95 Cole Park Road,
Twickenham, England.

ABBOTT, DR. E. K. California:

Polyporus aduncus. (See Note 228.)—Calvatia lilacina.—Polyporus volvatus.

AMES, F. H. New York:

Myriadoporus (form).

ARCHER, W. A., New Mexico:

Panus. I do not know any native Panus that develops from a sclerotium, but I am not informed on the Agaric subject. I am sure it is not an Eastern species.—Polyporus texanus.

BOSTON MYCOLOGICAL CLUB, Massachusetts:

Hydnum septentrionale.—Polyporus salignus.—Porothelium fimbriatum.—Hydnum reticulatum.—Hydnum velutinum. (See Note 229.)—Polyporus hispidus.—Polyporus cuticularis.—Hydnum Schiedermayeri.—Trametes piceina.—Polyporus Curtisii.—Polystictus versicolor.—Lenzites trabea.—Polyporus Spraguei.—Trametes hispida.

BRENCKLE, DR. J. F., North Dakota:

Poyporus adustus.—Lenzites betulina.—Polyporus gilvus.—Polyporus fumosus.—Fomes leucophaeus.—Xylaria polymorpha.—Polyporus cuticularis.—Polystictus hirsutus.—Stereum fasciatum.

BROWN, GEORGE, New Zealand:

Cordyceps Robertsii. (See Note 230.)—Paurocotylis pila. (See Note 231.)—Lycoperdon piriforme.—Stereum hirsutum.

Polystictus versicolor. Three color forms, pale, bright colored, and dark. The bright colored form is almost smooth and might be held as distinct.

BURKE, DR. R. P., Alabama:
Lycogala epidendrum.

CLELAND, DR. J. B., Australia:
Lachnocladium congesta.—Polyporus dryadeus. (See Note 232.)—Polyporus decipiens.—Polystictus cichoriaceus.—Polyporus portentosus.—(See Note 233.)—Stereum (Hymenochaete) villosa.—Stereum illudens.—Calvatia Gardneri.—Battarrea phalloides.—Phellorina Delastrei.—Stereum nitidulum.—Thelephora dentosa.—Thelephora terrestris.—Polyporus arcullarius.—Polyporus gilvus.—Stereum membranaceum.—Peniophora cinerea.—Peniophora crustosa(?)—Phlebia strigoso-zonata.—Laschia caespitosa.—Polystictus elongatus.

DEARNESS, JOHN, Canada: Collected Vancouver Island.
Odontia? A beautiful thing and no doubt something quite peculiar and curious if its microscopic structure was studied.
Trametes cervina.—Polyporus crispus.—Polystictus Macounii.—Stereum varicolor.

DEARNESS, J., Ontario:
Tremellodon gelatinosum.

EVANS, I. B. Pole, South Africa:
Polyporus rufescens.—Scleroderma aurantiacum.—Stereum hirsutum.—Trametes. Unknown to me and probably unnamed.—Bovistella aspera, (Myc. Notes, page 285.) See Note 234.

FORBES, C. N., Hawaii:
Polyporus lignosus.—Fomes Hawaiensis.—Fomes fasciatus.—Fomes robustus.—Polyporus dryadeus. (See Note 235.)—Trametes Persoonii.—Polyporus gilvus.—Tylostoma Leveilleanum. (See Note 236.)—Hydnum rawakense.

GRIFFITHS, DAVID, Oregon:
Fomes pini.—Lenzites trabea.

LATHAM, ROY, New York:
Trametes sepium.—Polyporus dichrous.—Fomes pini.—Hydnum imbricatum.—Polyporus gilvus.—Schizophyllum commune.—Polyporus giganteus.—Lenzites betulina.—Irpex lacteus.—Catastoma circumscissum.—Polystictus cinnabarinus.—Scleroderma verrucosum.—Daedalea unicolor.—Fomes annosus(?)—Poria radula.—Collybia velutipes.—Irpex tulipifera.—Daedalea quercina.—Fomes applanatus.—Poria pinea.—Poria ferruginosa.—Stereum complicatum.—Fomes rimosus.—Hymenochaete corrugata.—Panus rudis.—Polystictus versicolor.—Hydnum ochraceum.—Irpex cinnamomeus.—Stereum (Hym.) tabacinum.—Stereum (Hym.) Curtisii.—Dacryomyces stillatus.—Leotia lubrica.—Trogia crispa.—Stereum spadiceum.

LEEUWEN, DR. VAN., Java.

Fomes (Gan.) australis.—Fomes (Gan.) Koningsbergii.—Polyporus (Gan.) Japonicus.—Polyporus bicolor. This was named from Java=also vulneratus Léveillé from Java.—Polystictus xanthopus.—Polystictus fumigatus.—Polystictus obovatus.—Polystictus occidentalis.—Polyporus spadiceus.—Polystictus affinis.—Stereum (Hymenochaete) tenuissismum.—Lentinus Sajor Caju.—Polystictus elongatus.—Fomes pectinatus.—Hirneola auricula Judae.

MAIRE, R., Algeria:

Specimens mostly from Algeria.

Polyporus giganteus.—Hexagona nitida. (See Note 237.)—Daedalea unicolor.—Polystictus ochraceus.—Polyporus arcularius.—Poria pyropora. (As named).

NELSON, N. T. L., Florida:

Polystictus abietinus.—Polyporus arcularius.—Tremella mesenterica.—"Ozonium aurantium".—Polystictus biformis.—Polyporus (Gloeoporus) dichrous.—Trametes lactea.—Stereum frustulosum.—Schizophyllum commune.—Merulius Corium.—Trametes hydnoides.—Stereum cuneatum.—Hypochnus rubro-cinctus.—Bovistella (unnamed I think).—Polystictus versicolor.—Stereum strumosum. (See Note 238.)—Stereum subpileatum.—Stereum australe.—Stereum lobatum.—Guepinia spathulata.—Fomes marmoratus.—Polystictus sanguineus.—Polyporus lucidus.—Stereum complicatum.—Geaster hygrometricus.—Stereum bicolor.—Bovistella Ohiensis.—Calvatia rubro-flava.— Lenzites betulina.—Stereum (Hymenochaete) tenuissimum.—Merulius incarnatus.—Lentinus strigosus.—Trametes lactea.—Stereum albobadium. (See Note 239.)—Tremella mesenterica.—Lentinus velutinus.—Peniophora purpurea.—Aegerita Webberi.—Polystictus.—Polyporus supinus.—Caeoma pinitorquum.—Stereum fasciatum.—Lenzites saepiaria.—Stereum (Hymenochaete) rubiginosum.—Pyrenomycetes, genus unknown to me.—Lenzites striata.—Stereum sericeum.—Trametes rigida, (or Polystictus rigens).—Hirneola auricula Judae.—Polyporus gilvus.—Stereum albobadium.—Hydnum ochraceum.—Rhizopogon rubescens.—Thelephora griseo-zonata.—Polyporus adustus.—Lycoperdon piriforme.—Polyporus rhipidium.—Polystictus pergamenus.—Lentinus strigosus, young.—Xerotus lateritius.—Polystictus Friesii.—Polyporus supinus.

OLESON, O. M., Mississippi:

Phallus gracilis(?)—Polyporus (or Trametes). (See Note 240.)—Polyporus (Gan.) Curtisii.—Polyporus sulphureus.—Polystictus abietinus.—Polystictus versicolor, (pale form).—Poria versipora.—Polystictus hirsutus.—Radulum pallidum.—Irpex pachyodon.—Polyporus (Ganodermus) sessilis.—Polyporus gilvus.—Laternea columnata. (See Note 241.)—Polyporus (Ganodermus) Curtisii.—Stereum bicolor.—Fomes igniarius.—Geaster hygrometricus.—Poria punctata.—Polyporus adustus.—Lentinus strigosus.—Bovistella Ohiensis.—Fomes fomentarius.—Thelephora cinereo-grisea.—Scleroderma flavidum.—Lenzites betulina.—Hydnum erinaceum.—Lenzites rhabarbarina.—Stereum complicatum.—Polystictus pergamenus.—Lenzites saepiaria.—Polyporus adustus.—Polystictus sanguineus.—Favolus europaeus.—Polyporus supinus.—Stereum australe(?).

OVERHOLTS, L. O., Missouri:

Fomes Bankeri.—Polystictus pergamenus.—Polyporus leucospongia. From Tolland, Colorado, Alt. 10,000 feet, on coniferous log.—Polyporus alboluteus, (See Note 242.)—Polyporus varius.—Polystictus abietinus.—Trametes protracta.—Polyporus ursinus.

OWENS, C. E., Oregon:

Polyporus (Ganodermus) Oregonensis. Only a "species form" of Polyporus lucidus, same in every respect, except more obese and stipe grows in same plane as the pileus. Cfr. Letter 54, Note 221.—Polyporus corruscans. (See Note 243).

PARISH, S. B., California:

Polystictus hirsutus.—Tylostoma albicans.

PECKOLT, G., Brazil:

Calvatia lilacina.—Cladoderris dendritica.

PETCH, PROF. T., Ceylon:

Polyporus anebus.—Polystictus Blumei.—Polyporus semilaccatus.—Polyporus ochroleucus.—Fomes geotropus.—Polyporus sulphureus.—Fomes senex.—Polystictus perennis.—Fomes endotheius.—Fomes Sanfordii.—Polyporus gilvus.—Panus coriaceus. (See Note 244.)—Polyporus adustus.—Polyporus sideroides.

ROMELL, L., Sweden:

Sebacina incrustans.—Tremellodendron(?) contorta.—Thelephora spiculosa. In sense of Fries for me, not Burt.

SPAULDING, PERLEY, Vermont:

Trametes cervina.

TORREND, REV. C., Brazil.

From Brazil: Fomes endotheius.—Fomes pectinatus.—Trametes Feei.—Stereum (Hym.) tenuissimum.—Polyporus undatus.—Polystictus ochraceus.—Hirneola polytricha.—Hydnum rawakense.—Stereum nitidulum.—Polyporus Lepreurii.—Fomes Niaouli.—Lachnocladium compressum. (As named.)—Lachnocladium spadiceum. (As named.)—Stereum lobatum.—Hymenochaete simulans.—Cladoderris dendritica.—Polystictus gracilis. (See Note 245.)—Polyporus fumosus(?).

From South Africa: Hirneola auricula Judae.

From Holland: Daedalea quercina.

From Africa: Polystictus florideus.

From Isle of Timor: Polystictus affinis.—Hirneola auricula-Judae.

From Madagascar: Laschia papulata. (See Note 246).

UMEMURA, JINTARO, Japan:

Lenzites betulina,—Polyporus ochroleucus.—Stereum hirsutum(?)—Polysaccum crassipes.—Polysaccum tuberosum.—Calvatia Gardneri.—Calvatia caelata(?)—Polyporus illicicola.—Polystictus polydactylis.—Calvatia versipora. (See Note 247.)—Hydnum melaleucum.—Lenzites saepiaria.—Stereum spectabile(?)—Calvatia rubroflava.—Hydnum albidum.—Polyporus adustus.—Irpex concers.—Fomes annosus.—Polyporus (unnamed.)—Thelephora papillosa. (See Note 248.)—Daedalea gibbosa. (See Note 249.)—Cordyceps nutans. (See Note 250).

YASUDA, PROF. A., Japan:

Xylaria hypoxylon.—Hydnum (should be renamed). (See Note 251.)—Lycoperdon umbrinum.—Polyporus pubetatis—Polyporus scaurus. (See Note 252).

NOTE 228.—**Polyporus aduncus.** Pileus dimidiate, 1 cm. thick, unicolorous, brown. Surface with coarse, brown, hispid hairs. Context brown. Pores small, round, brown. Setae few, large, 8-10 x 60-75 mic. deep colored, with peculiar, hooked points. Spores hyaline, smooth. 4 x 5-6 mic. not guttulate. To the eye the plant resembles Polyporus cuticularis from which it differs entirely in microscopic features. The latter are same exactly as the rare Polyporus leporinus from which the plant differs in its coarse, strigose surface. It grew on roots of pine tree. The habitat and the specimen in a general way suggest Polyporus Schweinitzii which does not have these peculiar setae.

Specimen from E. K. Abbott, Cal.

NOTE 229.—**Hydnum velutinum,** from the Boston Mycological Club, Mass. This is a common plant in our country, discovered by Peck to be a new species and called Hydnum spongiosipes. It is also frequent in Southern Europe where it is known as Hydnum velutinum ascribed to Fries, although there is no possibility of it being the plant originally described by Fries, nor the figures that Fries cites. We use the name applied to the plant in France though should we cite an authority it would be "French, erroneous traditions."

NOTE 230.—**Cordyceps Robertsii** from George Brown, New Zealand. At the time we wrote our pamphlet on Australian Cordyceps we had no specimen, this being the first we have received. The perithecia are brown, easily rubbed off the axis, and measure 225 x 450 mic. The spores are tardily broken into secondary spores, and are mostly entire in the asci. The secondary spores are about 2½ x 2½ mic.

NOTE 231.—**Paurocotylis pila,** from George Brown, New Zealand. This is the second collection we have gotten from Mr. Brown (Compare Lyc. Australia, page 42). It is a very ample collection with fine specimens 3-4 cm. in diameter. There has been some doubt of the proper classification of the genus Paurocotylis, and it is included in Lycoperdaceae in Saccardo. The original figure in Flora, New Zealand, is quite inaccurate. The spores are borne not as shown by Berkeley on pedicels **but in asci**. There is a young specimen in this lot with the spores still all in asci. The ascus is hyaline, and measures 7 x 40 mic. with eight globose spores in a row. The walls of the asci disappear in the ripening of the plant to which no doubt is due the erronous view that Berkeley had. The plant should be included in Tuberaceae but I judge from the specimen they are not hypogeal.

NOTE 232.—**Polyporus dryadeus,** from Dr. J. B. Cleland, Australia. This grew on Eucalyptus and is the first specimen known from Australia. It appears at first to the eye a little different from the European plant, surface with a pale, more pronounced crust but microscopic features agree exactly. There is an indication on the specimen of a mycelial core, a feature only known on the related species, Polyporus corruscans in Europe.

NOTE 233.—**Polyporus portentosus,** sent by J. B. Cleland, Australia. I believe this specimen is portentosus though it is somewhat doubtful. I have the plant from Geo. K. Hinsby, which agrees exactly with the type at Kew. The tissue of the pores is white, same as the context. In Mr. Cleland's specimen the pores are discolored. The cuticle of the type is thin but distinct. The surface of the Cleland specimen is similar as to color but does not have a distinct cuticle. Spores allantoid, 1½ x 7 in the Cleland specimen. Not found by me in the previous specimens.

NOTE 234.—**Bovistella aspera** (from I. B. Pole Evans, South Africa), (Myc. Notes, page 285), Bovista aspera, as named by Léveillé. This collection agrees with the original excepting the color of gleba is more olive, due no doubt to being younger, and most of the spores are exactly same, viz. globose, 4-5 mic. smooth, with slender pedicels. There are a few spores however, mixed with the normal ones of a type I never saw before in a puff-ball. They have no slender pedicel, but taper to the base on the order of some Puccinia spores. I am at a loss to explain why a few spores should take this aberrant form for it is contrary to our ideas of the way spores are borne on the basidia.

NOTE 235.—**Polyporus dryadeus.** The color of the spores. For a long time I had the impression that Polyporus dryadeus had colored spores and kept the specimens on the shelf in the section with colored spores. Then Prof. Long came along and in conversation assured me that the spores were hyaline, and that he had noted the white spore deposits on leaves, etc., in the vicinity of the growing plant. Then I found hyaline spores in my specimens and moved them to the section with white spores. I have just gotten this plant from C. N. Forbes, Hawaii, with abundant pale colored spores, and on re-examining the European material I find while most of the spores are hyaline (probably immature) occasionally I rote a faint indication of color. I think the truth is they are hyaline when young, but fairtly colored when mature.

NOTE 236.—**Tylostoma Leveilleanum,** from C. N. Forbes, Hawaii. Gaudichaud made two voyages around the world, as botanical collector. The first in Uranie 1817-1820 and the (few) fungi were worked up by Persoon and published 1826 in the account of the botany of the voyage. They were the only foreign fungi that Persoon ever published,

The fungi of the second voyage of Gaudichaud in the Bonita 1836-1837, were distributed (unnamed) by Gaudichaud and I have found tnem in three museums; viz. at Paris, at the British Museum and in Delessert's herbarium at Geneva. Tylostoma Leveilleanum from Hawaii is found in all three of the museums, and all unnamed by Gaudichaud. Léveillé found the specimens unnamed (or rather named simply as "fungus" by Gaudichaud) in the museum at Paris and had the nerve to publish it as Tylostoma Leveilleanum and misrepresent that it was named by Gaudichaud. It is an example of the little tricks to which so called "scientists" will stoop to guin a little notoriety, and feed their egotism. And "science" in citing the name stands for this fraud to this day. These three collections (all same) made in Hawaii about eighty years ago are all that I have found in the museums. It has never been collected in any other country and never re-collected until this lot from Mr. Forbes.

NOTE 237.—**Hexagona nitida,** from R. Maire, Algeria. Fine specimens and the only ones I have ever received. I believe Prof. Maire is the only one who has collected it in recent years. He finds it in Northern Algeria on the live oak, Quercus Ilex, and the species is only known from the Mediterranean region and on this host. It is found in most museums of Europe as Hexagona Mori, having been distributed years ago by Marcucci under this mislabel. When young the plant has a smooth, polished crust, but Prof. Maire sends also a very old specimen with a rough rimose crust and the pores all filled in with tissue. The hymenial elements are hyaline, and there are no cystidia. I do not find spores. It is needless to say we are very glad to get this rare plant in our museum.

NOTE 238.—**Stereum strumosum,** received from N. L. T. Nelson, Florida. This was originally from Mexico, and a little piece of the type is at Kew, also from Cuba at Kew (Wright 411) but as far as I know this is the first collection from Florida. It is a resupinate, bright yellow species, forming little patches like S. frustulosum.

NOTE 239.—**Stereum albobadium,** from N. L. T. Nelson, Florida. With a narrow, reflexed, pilcate margin. It is a common plant around Cincinnati, but usually entirely resupinate. I have collected these plicate forms in Florida however, and think they are more frequent in the South.

NOTE 240.—**Polyporus (or Trametes).** From O. M. Oleson, Biloxi, Miss. I judge it is unnamed. It has a peculiar, truncated, globose hyaline, spore about 7-8 mic. Fomes Ohiensis is the only other plant we have with a similar spore and this cannot be resupinate of that. To the eye the pore tissue color is much like Fomes connatus. Underwood proposed a species Polyporus Meliae (cfr. Fomes Syn. p. 283) in this region and I should want to compare it with that.

NOTE 241.—**Laternea columnata,** sent by O. M. Oleson, Biloxi, Miss. A teratologic specimen having the arms not united at the apices as usual, but united to a ring at the top, resembling to some extent a Clathrus. It is the first abnormal specimen of this species we have noted, and in former days would have been eagerly described as a "new species."

NOTE 242.—**Polyporus alboluteus,** from L. O. Overholts. Mr. Overholts writes: "This beautiful plant is certainly a fine species when in fresh condition, and is extremely common in Colorado at altitudes ranging from 10,000 to 11,000 feet. It is at this altitude that the heavy Englemann spruce forests are found, and many of the old logs have the fungus growing on them. I have seen it effused for several feet along the under side of such a log and its bright color makes a very attractive fungus. It is almost entirely resupinate and is very soft to the touch when growing." There is but one collection known of this species from our Eastern States, viz. Adirondack Mountains, Peck, (cfr. Myc. Notes, p. 379). What a pity this fine species was so bunglingly named!

Since above was written we have a scanty collection of the plant collected by Dr. Kauffman in Michigan.

NOTE 243.—**Polyporus corruscans?,** sent by C. E. Owens, Oregon, =Polyporus Friesii, Bres. =Polyporus dryophilus Berkeley (cfr. Note 149). While I am confident this is an old, indurated specimen of Polyporus corruscans there is an element of doubt about it. I have gone through all my specimens from Europe and the United States and found none with the clear (chestnut) context color. They are all more yellow. Also this has not the "mycelial core" characteristic of Polyporus corruscans but that may be from it not being an entire specimen. The inner surface and hard context indicate this is an "old" timer, but it is not a Fomes. There are no annual layers.

NOTE 244.—**Panus coriaceus,** from Prof. T. Petch, Ceylon, "=Panus Berkeleyi Sacc. Vol. 5, p. 628. Compared at Kew.—T. Petch." I have never worked over the Panus at Kew. I have this same plant however, recently from Philippines labeled "Elmeria cladophora" supposed to be same as Hexagona cladophora. If that is true "Elmeria coriacea Berkeley McGinty" is prior. If the genus Elmeria was based on this species alone, I should be in favor of maintaining it, for it must be admitted it is not a good "Panus" nor a good "Hexagona." But to include in the genus, Hexagona albida and Polystictus setulosus because they have multicelled hairs on the hymenium is for me making an artificial genus in which Fomes connatus and Poria nitida could be included on this same character.

NOTE 245.—**Polystictus gracilis,** from Rev. C. Torrend, Bahia, Brazil. This is the second collection we have received from Father Torrend (Nos. 42 and 89). We are in considerable doubt in referring it to Polystictus gracilis which Berkeley classed as Hexagona and Patouillard classed as Amaurodermus. These specimens are correctly classed as neither, but should form a section in Lentus (46 d) with brown context. (All the species in 46c have pale or white context). Polystictus gracilis has heretofore been

known only from the old collection of Spruce, all specimens of which have pleuropodial stems. Both of Rev. Torrend's collections have mesopodial stems and thinner context. Hence it is not sure that they are the same species, but considering that they came from same region and have same stems, and same pores, and same context I believe this is where it should be referred. I find spores globose, hyaline, smooth, 8 mic. in one of Rev. Torrend's specimens (smaller 4-5 mic. in the other). I have hunted often for spores but never found them in the Spruce collection. I classed Polysticus gracilis (with doubt) in section Amaurodermus, but if these specimens are correct that classification was a mistake.

NOTE 246.—**Laschia, papulata,** from Rev. C. Torrend, Madagascar. Laschia is a tropical polyporoid genus with gelatinous tissue. They are mostly small and we get very few collections for the usual collector does not see these things. Ninety different species have been named but I doubt if there are more than a dozen or twenty good ones. Of 24 collections that reached Hennings, he discovered 21 to be "new species."

Laschia papulata came to Montagne originally from Chili and I think it was the first foreign true Laschia to be named (the original Laschia delicata not being a Laschia in the present sense). Montagne published it as Favolus pusillus (afterwards corrected it) and both Montagne and Berkeley at first mistook Laschia of the present day to be Favolus of Fries and named their first species in accordance. The microscopic characters are not recorded for the early species named, and the material preserved in the museums is so scanty one does not wish to cut it. Hence I am most glad to get Laschias in order to study them in section.

Laschia papulata is a small species, varying from 2-6 mm. Stipe lateral, slender. Color white, drying pale flesh. Surface pustulate with the translucent pores. Surface cells large, not muricate, deep colored. Hymenium cells (cystidia?) obovate, deep colored, 12 x 30. Basidia club shaped, forming a palisade layer. Spores hyaline, smooth, subglobose, 8 x 10 mic. with granular contents.

The following plants according to my photographs and notes of the types, agree in the main macroscopic features with Laschia papulata. Whether they differ or not in microscopic characters I cannot say.

Laschia brasiliensis, Brazil, described as pellucid yellow, spores not given. Seems same as papulata to me.

Laschia Selloana, Brazil, surely same as above.

Laschia Volkersii, Africa, described as citrine, spores "luteolus" elliptical, 6-7 x 10-11.

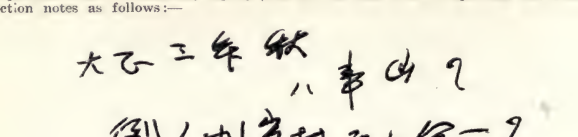
Laschia tonkinensis, China, white, spores subglobose, 8-10 x 10-12.

All the above are probably the same species. Rev. Torrend's specimen from Africa is no doubt Laschia Volkersii but probably also, Laschia papulata. No dependence whatever can be placed on Henning's microscopic records, and as to "new species" everything was "new" that reached him.

Fig. 707. Calvatia versipora. Photograph from Prof. J. Umemura.

NOTE 247.—**Calvatia versipora,** (Fig. 707). Globose, two to three inches in diameter, growing caespitose on a dead tree. Peridium white, smooth, or faintly pubescent, breaking irregularly in dehiscence. Sterile base none. Gleba pale isabelline color, friable, powdery, with no indication to the eye of capillitium. Spores varying much in shape and size, globose, elliptical, piriform, etc. 8 to 12 mic. in diameter, smooth, with granular contents, very pale colored. Capillitium indefinite, scanty, represented by irregular shreds of tissue rather than the usual, definite threads. If we had any way of knowing the early structure of this plant, I opine it would be found to have little resemblance to that of Calvatia. The absence of true capillitium and the pulverulent nature of gleba remove it from all Calvatias. Some of the spores appear to me to have two apiculi, one at each end, but I am not sure of it, and if it is true we cannot explain it by the usual supposed basidial origin of all "puff ball" spores. There is something mysterious about it.

Specimen from J. Umemura, Japan, (No. 131) on dead tree. I reproduce Mr. Umemura's collection notes as follows:—



NOTE 248.—**Thelephora papillosa,** from J. Umemura, Japan. This is the second specimen I have received from Japan. It was named in Letter 54, Note 222 Mr. Umemura sends a perfect specimen and a photograph (fig. 707) showing its manner of growth. It is imbricate, rosetted from a short, central stem. In its manner of growth it resembles Thelephora vialis of this country. This specimen accords with the type in the permanent papillate hymenium.

NOTE 249.—**Daedalea gibbosa,** from J. Umemura, Japan. Called Trametes in Fries' Hym. Europe but always a good Daedalea, never a Trametes for me. It occurs in Europe, Philippines, Japan, but is absent from the United States. This is the second European species that has come to my notice that occurs in Japan but not in the United States. The other species is Trametes odorata.

NOTE 250.—**Cordyceps nutans,** from J. Umemura, Japan. We are particularly pleased to get this specimen for we have seen none in any museum in Europe. It was originally well described and figured in Bull. Myc. France, 1887, page 127. It came from Japan, and we believe is only heretofore known from the original. It is peculiar in several things, It is the only Cordyceps recorded on a Heteroptera or "True Bug" as entomologists designate them. The insect belongs to the Pentatomidae, I am advised by Prof. Osborn, but does not appear in list of Japanese Hemiptera published by Uhler. Mr. Umemura sends a colored figure (fig. 709) which shows the club erect, not "nodding" as its name would indicate. He sends two specimens and two figures and all four show a branching stem as shown in the figure. Whether this represents another club that has been broken off or a sterile branch I cannot say. The stem is black, but the club and upper portion of the stem is orange rather than "violet" as originally described. As the material is scanty I do not wish to cut the specimen. The secondary spores were described as 1-1½ x 10-15 mic. which are unusually long. We hope our Japanese friends who find this will send us more ample material, as we should like to examine it under the microscope, and should also like an explanation of that branching stem.

NOTE 251.—**Hydnum,** sent by Prof. A. Yasuda, Japan. It is quite close in coloration and texture, also spores to Hydnum aurantiacum of Europe. It is the same as Hydnum conigenum as named by Peck, which was based on a single specimen growing (no doubt accidental) on a pine cone and misnamed in consequence. I think these names based on mistakes should have no validity, and were I publishing the Japanese plant I would give it a suitable name.

NOTE 252.—**Polyporus scaurus,** from Prof. A. Yasuda, Japan. A fine specimen from which we are enabled to draw a better description than from previous sendings. (Cfr. Note 65, Letter 44). Stipe thick, irregular, 3-4 cm. thick, with hard, woody, brown context and minutely velutinate surface. Usually pleuropodial, often deformed. Pileus 10-12 cm. with rugolose, zonate, minutely pubescent, brown surface. Context thin, 3-8 mm. dark brown, hard, zonate, Hyphae deep colored. Pores minute, brown, with concolorous mouths. Setae none. Spores elliptical, 3-4 x 5-8 hyaline, smooth. This is the fourth collection we have received from Prof. A. Yasuda. It is close to Polyporus Cummingii and should be entered in Section 36 (Pelloporus).

NOTE 253.—**Polyporus Patouillardii in the East.** This species came from Brazil and was only recently named by Rev. Rick. It is beginning to show up in the East. I have specimens from F. Yamada, Japan, and have just gotten it from Philippines under the mss. name Trametes fusco-badius. (Why Trametes, I cannot say.) On comparison I am quite sure now that the Japanese plant, the Philippine plant and the Brazilian plant are all the same thing.

NOTE 254.—**Polyporus Henningsii in Brazil.** We received some time ago from Rev. Rick, a fine specimen that to the eye looks like Polyporus lucidus, but growing in the earth, apparently from a rhizome which lucidus does not. It was labeled "formissimus = renidens." I considered it Note 90, Letter 47, as being renidens which I included in section 66 of Amaurodermus in my Stipitate Polyporoids and suggested that the species should be moved to the section Ganodermus. On my last trip to Berlin I brought home a type fragment of Polyporus renidens, and on examining the spores I find them as described in the pamphlet "globose, 7-8 mic. rough," and I believe now the plant is correctly classed in our Stipitate Polyporoids. The spores of Rev. Rick's plant were essentially different, piriform, with distinct, hyaline apicuff (typical Ganodermus) 10-12 mic. large, and distinctly rough. In looking over the description in Section 3 (Ganodermus) where Rev. Rick's plant belongs, I find it exactly same in all characters as Polyporus Henningsii except that it is pleuropodial and Polyporus Henningsii is mesopodial. On this difference I would not

base a species in this section, for while stipe insertion is generally uniform in a species, I know cases of Polyporus lucidus, usually pleurcpodial, with mesopodial stipes, and I have a collection of Polyporus auriscalpium with both stem insertions in specimens of same collections. I should therefore consider Rev. Rick's plant as a pleuropodial specimen of Polyporus Henningsii of Africa.

NOTE 255.—**The spores of Fomes graveolens.** It was to be expected that Murrill would find Fomes graveolens to be a "new genus" and hence there was no necessity for this purpose to further invent that it had "globose, ferruginous spores." I have never found the spores although Overholts writes me that in a specimen he has recently gotten the spores are abundant. "They are cylindrical, hyaline and measure 9-10 x 2½-3½ mic. They are very abundant in the sections, attached to the basidia, so there was no possibility of getting them wrong."

Now that this fairy story about the colored spores of Fomes graveolens has been interned, I think there is another delusion regarding it that should be investigated by some one who has an opportunity to watch its development. It has always passed unquestionably as a Fomes, but I have an idea it is a Polyporus and it is developed from a "mycelial core" in the same manner as Polyporus corruscans. My first impression regarding Fomes graveolens was that it was a plant of very slow growth, persisting for years, but since the nature of the "mycelial core" of Polyporus corruscans has been shown, I expect it will be found that instead of being of slow growth, Fomes graveolens is of very rapid growth as is Polyporus corruscans. Polyporus corruscans becomes hard and indurated in its later stages and has been taken for a Fomes. In fact it is one of the six different plants that have been called "Fomes fulvus, Scop."

In a subsequent letter Mr. Overholts writes me that he has observed the fruiting bodies of Fomes graveolens persisting for three seasons, hence it must be a perennial, but its manner of growth is as much a mystery as ever. Certainly it does not increase by addition of pore layers as most Fomes do, and I cannot understand how it can grow by enlargement of the core without disarranging the pileoli.

NOTE 256.—**Polyporus (Amaurodermus) costatus.** Pileus mesopodial, 8 cm. broad, 2-3 cm. thick. Surface dull, reddish brown, slightly laccate. Stipe slender, with smooth, laccate surface, hollow, with pale isabelline context. Pileus context very scanty, the pores reaching the crust. Pores medium small, ½ mm. with thin walls, 3 cm. long, pore tissue pale buckthorn brown. Spores (fig. 710) most peculiar, globose or slightly elongated 12 mic. with longitudinal ribs, which are connected by a few smaller transverse ribs.

This was received from the Philippines, No. 20289, collected Prov. Neuva Viscaya, Luzon by R. C. McGregor. It was labeled Gandodermus renidens, which is a very different species of Brazil. Polypores characterized by peculiar spores are rare. We only know three species and each of them is known from a single collection, viz. Polyporus Lloydii Africa, Polyporus longipes, South America, and this from Philippines.

At our request Miss E. M. Wakefield at Kew has prepared the accompanying figure and notes on the spores:

"The spores are very curious. I enclose a sketch in which I have endeavored to give my idea of them, but they are most difficult to draw properly. The thickening appears to me to be chiefly in the form of ribs running the long way of the spore, which is somewhat lemon-shaped. These longitudinal ribs are connected here and there by small transverse ones so as to form a net work. Thus if you look down on the spore end-wise, you see the ribs radiating out from the center, as I have shown in one figure, and at the margin a series of hyaline blocks, due to the transverse bands which are seen at various levels connecting the ribs. Seen from the side, the long ribs appear running from end to end, and owing to the roundness of the spore, the center and sides are not in focus at the same time, so that you may only have the central bands clear and the spore would appear keeled. I have also drawn one other view which shows both end and sides—the spore being half turned over."

NOTE 257.—**Isaria atypicola.** Regarding Isaria unnamed in Letter 54, Note 223, we have received advice from Prof. Yasuda, as follows.—

"I will propose the name Isaria atypicola as it is a new species, taking Atypus the host as its specific name. I will publish this name in the Botanical Magazine at Tokyo of next month.

Isaria atypicola grows on Atypus Karschi Doenitz, which makes a long tube under the ground. The spider lives at the bottom of a tube. At first Isaria attacks the living Atypus, which falls sick and soon dies. After the death of the animal, the mycelium of Isaria reaches to its perfect development, growing as well on the inner side as on the outer side of the host. At last the mycelium envelops the animal body like a white down, and then produces a club-shaped stroma, which projects its top 1 cm. or more from the mouth of the tube. The upper part of the stroma is light purple, and shows a velvety appearance, bearing many cylindrical conidia."

There probably occurs in Japan a Cordyceps corresponding to this Isaria form. We trust our Japanese friends will look out for it. It is rather unusual that the Isaria form of a species should be known and the Cordyceps form unknown, for it is usually the other way.

NOTE 258.—**Laschia auriscalpium.** A tiny, little species with pileus about 1 mm. in diameter and slender hair like stem, 3 mm. long. The pileus surface and stem brown, large, ovate, deeply colored cellular glands which give the plant the color. There are no crested hyaline cells. Spores 5 x 8 ovate. Basidia hyaline, 8 x 20.

I am pleased to get this little species from Rev. Torrend, Brazil, for examination and photograph (Fig. 711). The material in the museums of Europe is so scanty I never dared to cut it. Our figure is enlarged six diameters which shows graphically how small the plant is in natural size. Laschia rubra (type at Belin) is for me a synonym.

NOTE 259.—**Laschia Gaillardii.** Pileus very small, 1-1½ mic. sessile, appearing resupinate but really attached by a point. When soaked pale yellow, surface with deeply colored cellular glands, also peculiar hyaline, cellular hairs 8 x 40, the surface beautifully crested. I have a suspicion that Laschia Gaillardii is same plant as Laschia pezizoidea. It looks same to the eye, and came from same region, but material of the latter is so scanty I never sectioned it.

NOTE 260.—**Changes at Kew.** Information has been received that Professor Massee having reached the age limit, has been retired from the position of First Assistant at Kew. I am also informed that Mr. A. D. Cotton has been promoted to the grade of First Assistant and is engaged in pathological work in the laboratory and that Miss E. M. Wakefield is in charge of the taxonomic work in the herbarium. Having a very close acquaintance with Mr. Cotton and Miss Wakefield, I am gratified that these departments have been placed in their charge. They both impress me as being workers of rare ability and thoroughness and the Directors of Kew can be congratulated in having the mycological departments in such good hands.

Fig. 708. Thelephora papillosa (Note 222 and 248). Photograph from Prof. J. Umemura.

Fig. 709. Cordyceps nutans (Note 259).

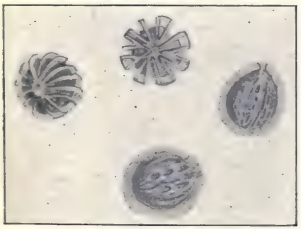


Fig. 710. Spores of Polyporus costatus. Drawing by E. M. Wakefield.

Fig. 711. Laschia auriscalpium. (X 6). (Note 258).

ADDENDUM.

(Crowded out of the Stipitate Stereums.

THE GENUS MYCOBONIA.

This is a Thelephoraceous genus that has been confused with the Hydnaceæ. The hymenium borne on the lower surface has, under a lens, minute teeth-like projections, which consist of bundles of sterile hyphæ. (Fig. 713.) These "teeth" led Berkeley to class the plant in the genus Hydnum—an obvious error, as all Hydnaceæ have the basidia and spores borne on the teeth. At the time Berkeley so referred it he questioned the reference. Spegazzini was the first to note that the teeth were sterile, and suggested putting it in Hymenochaete (Cfr. Sacc., 9, 211); but the "teeth" have no resemblance or analogy to the setæ of the section Hymenochaete. Then Patouillard discovered that it was a "new genus," and called it Bonia, afterwards, when this was found to be preoccupied, changed to Mycobonia. It is probably best classed as a section of Stereum. Recently an American (Mr. Banker), engaged in juggling the Hydnaceæ, also proposed for it a "nov. gen." "Grandiniodes" in blissful innocence, first, that the plant does not even belong to the general class of plants that he was engaged in juggling, and that had he known the elementary, essential characters of a hydnaceous plant he would have known he had nothing to do with this. And, second, had there been any occasion to call it a "gen. nov.," the same thing had been done twice before, and a genus based on the *same species* ("Hydnum" flavum).

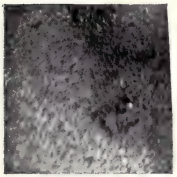
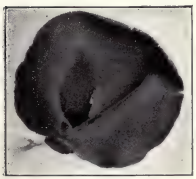


Fig. 712.

Fig. 713.

Fig. 712 hymenium surface enlarged. Fig. 713 hymenium magnified. (Cut from Eng. & Prantl.)



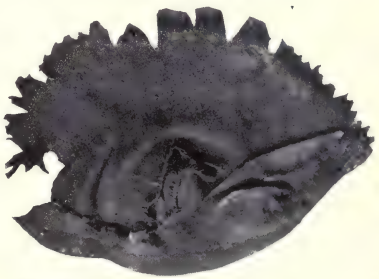


Fig. 714.

Mycobonia flava.

MYCOBONIA FLAVA (Fig. 714).—Pileus glabrous, sessile, attached by a reduced base or rarely with a short lateral stipe. Color of dried plant, pale yellow when fresh. The old museum specimens are reddish brown, under surface, paler yellowish brown. Hymenium

covered with minute teeth (Fig. 712) visible to the eye, which the microscope shows are bundles of sterile hyphæ, the base of the bundles imbedded in the hymenium (Fig. 713).

This is not a rare plant in tropical America, and one of the first foreign species to reach Europe, having been labeled Peziza flava by Swartz, from Jamaica, over a hundred years ago. It has been found by Langlois in Southern United States, and I have recently collected it in Florida.

SYNONYMS.—Originally named Peziza flava by Swartz, it was changed to Hydnum flavum by Berkeley, who also called a pale form of it from Brazil, Hydnum brunneoleucum.

Fig. 715.
Hydnum reticulatum. (Letter 54, Note 224).

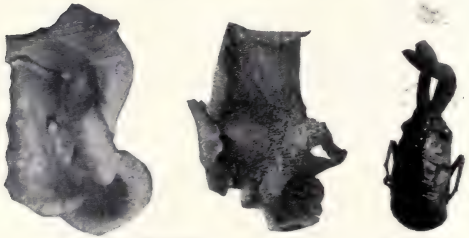
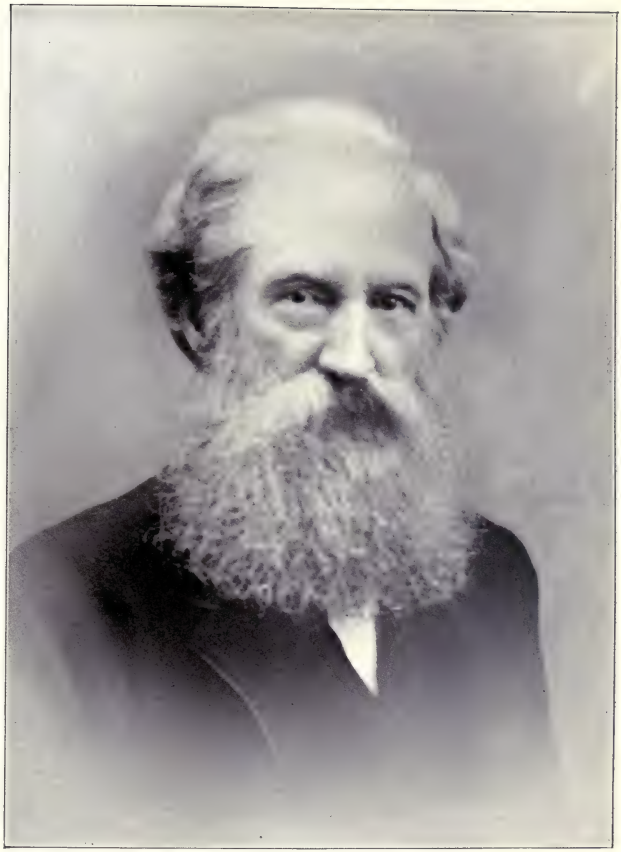


Fig. 716.
Polyporus Mikawai.
(Note 214, Letter 54).

Fig. 717.
Cordyceps sobolifera.
(Note 167, Letter 53.)



MORDECAI CUBITT COOKE.

Few men are more generally known in the mycological world for their writings than M. C. Cooke. We are indebted to Mr. J. Ramsbottom for the photograph which we present herewith. We think this was made some ten or fifteen years ago when Mr. Cooke was in the prime of his power. A short article and bibliography will be found on the following pages.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

LETTER No. 57.

By C. G. Lloyd.

M. C. COOKE.

There recently died (November, 1914) in England, a man who has made more impression on British Mycology than any other person except Berkeley. A most voluminous writer, an indefatigable worker, he did much to popularize the subject of mycology in England. It was not my privilege to know him during his active days, but I met him once or twice at Kew, where he visited occasionally during his declining years.

Personally, I think that Cooke's works will be recognized in the future more from their quantity than their painstaking quality. He entered into many branches of natural history and animal life, as well as all departments of plant life, algae, diatoms and fungi from beginning to end. No man lives, or ever did live, who could master fungi in all its extent, and for a man to spread his knowledge over such a wide field necessitates a very thin layer. Had Cooke put the same amount of work and energy in a more restricted field he would have built a monument for himself such as Lister built on the Myxomycetes, or Boudier on the Discomycetes. Cooke was a very facile writer and as a popular writer on the subject in hand he had no equal. He was also a good artist, some of the pictures he drew of agarics from the living plant being scarcely subject to the faultfinder's criticism. A saying current among European mycologists is, that Cooke was so talented he could draw a picture of an agaric that he had never seen. However, he attempted to do so much work that he necessarily slighted much of it.

We present herewith a bibliography of his writings taken from the list in the Lloyd Library. Many articles scattered through various journals and periodical literature do not appear in this bibliography. The one book that Cooke wrote, and which appeals to me as having the most merit was the first edition of his "Handbook of British Fungi." This work I have always thought to be a most useful publication, the information being presented in a very plain and lucid style. It also gives more evidence of original investigation, and, I think, taking it as a whole, is more accurate than any other work he has written. The work is exhausted and out of print, commands a high price; three or four pounds, I believe, being paid when a copy is found in the secondhand dealer's hands. The second edition of this book does not compare with the first, being simply a translation from Fries, and with no acknowledgment as far as I have ever seen.

Cooke's "Handbook of Australian Fungi" is neither practical nor accurate, and I think few books on mycology have been written with as little basis for existence. Cooke's work on the Discomycetes was based on the study of dried specimens, consequently the numerous errors are largely due to this fact. Cooke's most ambitious work, the "Illustrations of British Fungi," is a monumental work of labor and patient application. I am told that not only did he make the original drawings of the plants, but that the figures were actually transferred by Cooke to the stones from which they were printed.

To sum up, although Cooke was a wonder in the amount of work that he accomplished, what appeals to me most strongly is the conservative nature of his nomenclature. Should a monument ever be raised to him, I trust they will carve on it in large letters:

"He was never a name juggler."

A detailed account of Cooke's life is given in the *Journal of Botany* (British), February, 1915, by J. Ramsbottom, B. A., in which is recorded many details that I am unable to produce on account of limited space.

Those who are interested in the works of Cooke will also find that Mr. Ramsbottom's valuable article supplies all that can be expected.

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3rd ed. 274 pp. Paris, 1882,
pp. Paris, 1892,

The Myxomycetes of Great Britain,
96 pp. 24 pl. London, 1877,
(Trans. from the Polish of J. T. Rostafinski as far as it related to British species).

Mycographia seu Icones Fungorum,
Vol. 1, (Discomycetes part 1,) 267 pp. 113 pl. London, 1879,

The Woodlands,
1st ed. pp. London, 1879,
2nd ed. 287 pp. London, 1885,

Ponds and Ditches; their Plants and Animals,
250 pp. London, 1880,
254 pp. London, 1892,
254 pp. London, 1897,

Illustrations of British Fungi,
Vol. 1, 20 pp. 144 pl. London, 1881-3,
2, pp. +292 pl. London, 1881-3,
3, 16 pp. +454 pl. London, 1884-6,
4, pp. +622 pl. London, 1884-6,
5, 13 pp. +763 pl. London, 1885-8,
6, pp. +921 pl. London, 1885-8,
7, 10 pp. +1101 pl. London, 1889-90,
Supp. 8, 20 pp. +1199 pl. London, 1889-91,

British Fresh Water Algae,
Vol. 1, 329 pp. London, 1882-4,
2, 130 pl. London, 1882-4,

Freaks and Marvels of Plant Life,
403 pp. London, 1882,

Fungi Australiani
78 pp. 4 pl. Melbourne, 1883,
(Supplement to "Frag. Phytogr. Australia" by Mueller F., Grevillea, x, xi.)

Clavis synoptica Hymenomycetum europaeorum, (Cooke and Quélet.)
240 pp. London, 1878,
240 pp. London, 1887,

Introduction to Fresh Water Algae,
339 pp. 13 pl. London, 1890,

Handbook of Australian Fungi,
458 pp. 36 pl. London, 1892,

One thousand objects for the microscope,
New ed. 179 pp. 13 pl. London, 1900,

British edible fungi,
237 pp. 12 pl. London, 1891,

Vegetable wasps and plant worms,
364 pp. 4 pl. London, 1892,

Romance of Low Life amongst Plants,
320 pp. 60 fig. London, 1893,
(Fungi, pp. 197-316).

Handbook of the British Hepaticae,
310 pp. 7 pl. London, 1894,

Edible and poisonous Mushrooms,
126 pp. 18 pl. London, 1894,

Introduction to the Study of Fungi,
360 pp. London, 1895,

Fungoid pests of cultivated plants,
278 pp. 24 pl. London, 1906.

Catalogue and field-book of British Basidiomycetes up to and inclusive of the year 1908.
[98 pp. London, 1909].

LETTER No. 58.

Report of specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
95 Cole Park Road,
Twickenham, England.

Cincinnati, Ohio, July, 1915.

ARCHER, W. A., New Mexico:

Battarrea Stevensii.—Tylostoma poculatum.—Chlamydopus Meyerianus. (See Note 261.)—Gyrophragmium Texense. (See Note 262.)—Battarrea phalloides.

BALLOU, W. H., New York City:

Panus levis.—Trametes serialis. Resupinate.—Irpex (or better Poria) obliqua.—Polyporus semisupinus.—Mitremyces cinnabarinus.—Polyporus triqueter.—Stemonitis ferruginea.—Stereum (Hymenochaete) tabacinum. —Stereum complicatun.—Stereum spadiceum.—Poria ambigua.—Irpex lacteus.—Polyporus Spraguei.—Polyporus albellus.—Coprinus fimentarius. —Polystictus biformis.

BOURDOT, REV. H., France:

Critically named and selected specimens much appreciated by me, including six collections which have been named by various writers as "Thelephora spiculosa." Excepting the Thelephoras, all are listed as named when received.

Sebacina incrustans.—Solenia poriaeformis.—Platygloea Miedzyrzecensis (with apologies for the name.) (See Note 263.)—Sebacina grisea.—Hydnum acre. (See Note 264.)—Six collections of Thelephora. (See Note 265.)

BURKE, R. P., Alabama:

Stereum Ravenelii. (See Note 267.)—Stereum diaphanum.—Xylaria castorea. (?)—Polystictus mutabilis.—Polystictus petaliformis. (?)—Polyporus dichrous.—Xylaria polymorpha, (conidial.)—Xylaria polymorpha.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

(mature.)—Stereum fasciatum.—Stereum frustulosum.—Polystictus pergamenus.—Stereum sericeum.—Polyporus (Ganodermus) Curtisii.—Polyporus arcularius.—Polystictus pinsitus.—Hydnum ochraceum.—Stereum bicolor.—Stereum albobadium.—Polystictus hirsutus.—Polystictus versicolor.—Polystictus cinnabarinus.—Daedalea ambigua.—Polyporus adustus.—Favolus europaeus.—Polyporus (Ganodermus) sessilis.—Lentinus strigosus.—Polyporus gilvus.—Stereum complicatum.

CHEEL E., Australia.

A nice collection of only eight numbers, but three of them of very great interest as per notes in detail.

Polyporus Patouillardii. (See Note 268.)—Polyporus Mylittae. (See Note 269.)—Polyporus australiensis. (See Note 270.)—Fomes robustus.—Trametes lilacino-gilvus.—Fomes applanatus.—Fomes australis.—

DEARNESS, JOHN, Canada:

Aleurodiscus amorphus.

EASTWOOD, MISS ALICE, California:

Gyrophragmium decipiens.

GRANT, J. M., Washington:

Polystictus versicolor.—Fomes pinicola.—Stereum variicolor.—Polyporus volvatus.—Polystictus hirsutus.—Stereum fasciatum.—Polystictus abietinus.

GRIFFITHS, D., Texas:

Fomes badius. (See Note 271.)

HARVEY, B. T., Colorado:

Cyathus vernicosus.—Botrytis (sp.) (See Note 272.)—Trametes hispida.—Fomes igniarius.—Polystictus hirsutus.

KAUFFMAN, DR. C. H., Michigan:

Polyporus albellus.—Trametes serpens??—Fomes nigricans.—Trametes variiformis. (See Note 273.)—Trametes serialis.—Polyporus alboluteus. (See Note 274.)—Porothelium fimbriatum.—Trametes cervinus.—Poria aurantiaca.—Asterodon ferruginosum. (See Note 275.)—Coniophora leucothrix?—Stereum spadiceum.—Polystictus versicolor?—Hymenochaete Curtisii.—Aleurodiscus amorphus.—Polyporus intybaceus. (See Note 276.)

LATHAM, ROY, New York:

Panus stipticus.—Polyporus Curtisii.—Polyporus betulinus.—Stereum fasciatum.—Polystictus pergamenus.—Stereum frustulosum.—Polyporus gilvus.—Polyporus adustus.—Hydnum. Old, last year's specimen. Effete. Probably H. imbricatum.—Irpex lacteus.—Dacryomyces deliquescens.—Lycoperdon umbrinum.

LEEPER, B., Ohio:

Lenzites striatus.—Polyporus spumeus.—Sclerotium of Polyporus umbellatus. (See Note 277.)—Polyporus Rostkovii. (See Note 278.)

NELSON, N. L. T., Florida:

Fomes marmoratus.—Polyporus dichrous.—Stereum australense.—Polystictus versicolor.—Polystictus Friesii.—Lenzites betulina.—Lentinus strigosus.—Lenzites saepiaria.—Stereum ochraceoflavum.—Stereum sericeum.—Hydnum ochraceum.—Merulius Corium.—Urnula Craterium.—Lycogala Epidendrum.—Tremella mesenterica.—Stereum fasciatum.—Lenzites repanda.—Tremella lutescens.—Polyporus supinus.—Polyporus adustus.—Septobadisium pedicellatum.—Trametes lactea.—Polystictus ectypus.—Lenzites corrugata.—Polystictus azureus.—Lycoperdon piriforme.—Cyathus microsporus. (See Note 279.)—Stereum lobatum.—Trametes rigida, (or Polystictus rigens as changed by Saccardo.)—Daldinia concentrica.—Polystictus hirsutus.—Lenzites striata.—Stereum bicolor.—Lentinus velutinus.—Trametes hydnoides.—Polystictus hirsutulus.—Xerotus lateritius.—Favolus Braziliensis.—Rhinotrichum fulvum.—Hirneola auricula-Judae, young.—Merulius incarnatus.—Stereum strumosum.—Stereum ochroleucum.—Stereum (Hymenochaete) rubiginosum.—Stereum frustulosum.

PARISH, S. B., California:

Podaxon Farlowii. This is the only native species of Podaxon that we have.

PETCH T., Ceylon:

Polyporus Talpae?—Stereum floriforme?—Polystictus polyzonus.—Polyporus vivax.—Polyporus ostreiformis.—Polystictus Thwaitesii.—Polyporus heteroporus.—Stereum elegans.—Polystictus lutescens.—Polyporus durus.—Hexagona tenuis.—Polystictus floccosus.—Polyporus licnoides.

ROMELL, L., Sweden:

Polyporus fumidiceps. (See Note 280.)

SCHUMO, S. L., Collected near Delaware Water Gap.

Urnula Craterium.—Stereum fasciatum, bearing on the surface hairs an abundant, black, parasitic fungus (unknown to me) which gives it a very curious appearance.

TORREND, REV. C., Brazil.

Hexagona cucullata, (as Favolus) cfr. Hexagona pamphlet, page 35. It is Favolus for Bresadola, Pseudofavolus for Patouillard and Hexagona for me.—Polyporus caesius.—Hexagona aculeata.—Lenzites furcata.—Fomes marmoratus.—Fomes (Ganodermus) fasciatus.—Fomes pectinatus.—Polystictus villosus.—Polyporus subfulvus.—Hexagona scutiger.—Trametes versatilis.—Polyporus quaitecasensis.? (See Note 281.)—Hymanochaete Damaecorne.—Polystictus subfulvus.—Polyporus multiformis.—Polystictus caperatus.—Fomes glaucopus.—Guepinia spathularia.—Geaster velutinus.—Daedalea unicolor (very doubtful.)—Polyporus asterosporus (See Note 282.)—Polyporus gilvus.—Laschia auriscalpium.—Stereum aurantiacum.—Hirneola auricula-Judae.—Lenzites erubescens.—Polystictus pinsitus.—Polystictus Friesii.—Polystictus gilvoides.

Polyporus Ballouii. (See Note 285.)—Geaster mirabilis.—Polyporus

mutabilis?—Polyporus dictyopus.—Thelephora radicans.—Polyporus licnoides.—Polyporus valenzuelianus.—Polyporus scruposus.—Grammothele lineata?—Stereum Beyrichii.—Polyporus (Amaurodermus) rudis. (See Note 286.)—Lycoperdon fuligineum.—Fomes Ohiensis. (See Note 287.)—Polystictus rigens.—Polystictus elongatus.—Lentinus villosus.—Solenia candida.—Lentinus strigosus.—Stereum (Lloydiella) percome.—Polyporus Guyanensis?—Hirneola auriformis.

(From various countries.)—*From South Africa.*—Polyporus sulphureus.—Polyporus vallatus.—*From Australia.*—Lycoperdon cepaeforme.—*From Island Timor.*—Polyporus rubidus.—*From India (Maduré).*—Matula poroniaeformis. (See Note 288.)

WEIR, JAMES R., Montana:

Tremella frondosa?—Hydnum zonatum (very ?)—Merulius Corium. resupinate.—Trametes hispida.—Exidia recisa.—Panus salicinus.—Polyporus fumosus.—Tremella indecorata.—Scleroderma Cepa.—Polyporus leporinus.—Fomes annosus.—Polyporus dichrous.—Trametes variiformis.—Polyporus semisupinus.—Fomes Everhartii.—Polyporus cuticularis.—Polyporus Sartwelii. (See Note 289.)—Polyporus stipticus. (See Note 290.)—Irpex farinaceus.—*From Indiana.*—Trametes sepium.—*From District of Columbia.*—Trametes cervinus.—Exidia recisa.—Fomes (unnamed.)—*From British Columbia.*—Scleroderma Cepa.

WESTGATE, J. M., Hawaii:

Fomes (Ganodermus) fasciatus.—Trametes Persoonii.—Hirneola polytricha.

NOTE 261.—**Chlamydopus Meyerianus** from W. A. Archer, New Mexico. A fine specimen and a particularly rare species. This is the third collection known from the United States. Many years ago a specimen from New Mexico reached Berkeley, and Prof. C. V. Piper in 1902 sent me a fine collection from Pasco, Washington and an interesting account of its habits. (Cfr. Myc. Notes, p. 134). The species came originally from Peru and a single collection now at Kew is known from Australia and one from North Africa. Spegazzini records it from South America, and these are all the records or specimens known.

NOTE 262.—**Gyrophragmium Texense,** from W. A. Archer, New Mexico. Same as Gyrophragmium decipiens from California and both are too close to Gyrophragmium Delilei of Mediterranean regions. (Cfr. Myc. Notes. p. 196).

NOTE 263.—**Platygloea Miedzyrzecensis** (with apologies for the name), from Rev. H. Bourdot, Allier, France. The genus Platygloea was proposed by Schroeter (Pilz. Schles. p. 384) and defined as having basidia divided by partitions into four compartments. He lists three species, nigricans on Tilia, cushion shape, white; fimicola on manure, disciform flesh colored; and effusa on a stump, resupinate bluish or yellowish white. All were soft, waxy-gelatinous texture. He did not give any figure of the basidia.

This work came out in parts. I think this part was issued August, 1887. The next year Brefeld brought out his Part 7 and what was evidently the first species of Schroeter was characterized, figured and called Tachaphantium Tiliae and the basidia here first shown. Saccardo in compiling it evidently thought it the same as Schroeter's species (as it evidently is) for he cross referenced them but did not consolidate them.

I was glad to get this material from Rev. H. Bourdot as it is the first time I have been able to make out basidia of this type. In these specimens they are easily seen. They are simply the swollen ends of the hyphae, which are curved, first filled with granular matter, then divided by septa (3 to 5) and send out just below each septum a sterigma bearing the spore. The various figures given of these basidia all impress me as more diagrammatic than natural. The septa so strongly shown are usually indistinct. The basidia are curved, not straight as usually shown. The figure in Patouillard's Essai page 13 (of Helicogloea which is the "new genus" that Patouillard discovered it to be) is the most natural but in this the septations are inaccurate in relation to the sterigmata. Every time they find a little, gelatinous plant with these basidia, it is a new species and ten have accumulated in Europe. We do not seem to have them in the United States, at least we have no one who has hunted for them, or observed them, or who would have known them had he found them.

NOTE 264.—**Hydnum acre,** from Rev. H. Bourdot, Allier, France. Most assuredly this is not the same plant as our "acrid" species (Hydnum mirabile) as has been stated.

NOTE 265.—**Thelephoras.** I am inclined to think there are four or five species in Europe usually referred to Thelephora spiculosa. They all have same spores, as most Thelephoras have, but seem to me different in their habits. I have received six collections from Rev. Bourdot, Allier, France, and labeled them in my collection as follows:

Thelephora biennis (?) (See Note 266).
Thelephora spiculosa. Growing on pine needles as recorded by Fries.
Thelephora crustosa. Resupinate, technically a Tomentella now.
Thelephora mollissima. Always in frondose woods, sending up ascending pileoli.
Thelephora fimbriata of America mycology,=Thelephora cristata var. fusco-badium Desm. No. 362. Thelephora cristata, Schroeter, (797) not Fries or Persoon. An incrusting species with narrow, free border.

NOTE 266.—**"Thelephora fastidiosa,"** from Rev. H. Bourdot, Allier, France. I have received from Rev. H. Bourdot, a specimen, the first of this kind I have seen. It was labeled "Thelephora fastidiosa, Det. Quélet, 1876" but surely is not of Quélet's Flora 1888, nor Persoon nor Fries, which is not a Thelephora now. I judge it is biennis of Quélet's published works. As it was determined as fastidiosa it must have been foetid when fresh, but has no resemblance to Thelephora palmata or Thelephora diffusa, the only foetid species of Thelephora known to me. Biennis is not known to me, but is not reported to be foetid. I wish some one would favor me with specimens of Thelephora biennis if any one knows it.

NOTE 267.—**Stereum Ravenelii,** from R. P. Burke, Alabama. This is the first collection we have gotten. It is larger and more robust than the types (cfr. Syn. Stip. Stereums, fig. 543). It is a Southern species only and it is a question if really distinct from Stereum nitidulum of the tropics. The latter has however, a long, rooting base, which we have never seen in connection with our American plant.

Dr. Burke informs us that Stereum Ravenelii is quite a frequent species in his locality, growing in the ground in swampy regions. As far as I know, the original collection by Ravenel was all that was previously known. It shows how little is known regarding the occurrence of Southern species.

NOTE 268.—**Polyporus Patouillardii,** sent by E. Cheel, Australia. This is the first specimen known from Australia and its occurrence is of much interest. Very recently, 1907, it was named from Brazil by Rick, then we got specimens from Japan, G. Yamada, then from Philippines, E. D. Merrill, and now it comes in from Australia. (Compare Synopsis Polyporus page 366 and Note 253, Letter 56).

The Australian plant differs slightly from the Brazilian plant, in fact enough to make a "new species" if one wants to multiply the species, but the difference can only be noted on comparison, and of course, from one specimen we cannot say it is constant. The context of the Australian plant is coarser to the eye, and the microscope shows the hyphae slightly thicker and of much deeper color. The different hyphae of the pore tissue are not in evidence, and I find no setae. The spores are slightly smaller, 3 x 5. These differences would ordinarily constitute "a species," but I feel it is practically the same plant, and it would only obscure the subject to propose one. The history of Polyporus Patouillardii which has all developed in the last three years, is evidence of what little is known relatively about foreign polypores.

NOTE 269.—**Polyporus Mylittae,** from E. Cheel, Australia. There occurs in Australia a frequent tuberaceous growth, which was used by the natives as food and called "native bread" or "blackfellow's bread." While it was supposed to be of fungal origin, its nature was unknown for many years and Berkeley (in 1839), presuming that it belonged to the Tuberaceae, although he records that he could not find any spores, named it Mylittae australis. It was compiled in Vol. 8 Saccardo under the uncertain genera.

The exact nature of this growth was a mystery, until 1885 when H. T. Tisdall found specimens that had developed fructifications of a Polyporus and gave an account of it in the Victorian Naturalist. Specimens were sent to Kew and named Polyporus Mylittae (1892). These are the finest fruiting bodies I have seen. I found no specimen at Kew but at the British Museum is a photograph of a sclerotium bearing several deformed sphorophores. The specimens from Mr. Cheel are regular and perfect. As the original description is inaccurate in several particulars, we would describe it as follows:

Pileus 2-4 cm. with a valeate, minutely tomentose surface. Color raw umber (brown). Flesh dry, subligneous, in two layers, each 1 to 2 mm. thick, the upper light brown, the lower white. Stipe mesopodial, 5-10 mm. thick, 2-3 cm. long, deformed. Pores small, round or irregular, 2 to 3 to a mm. 2-3 mm. long. Spores abundant, cylindrical, 2 x 6 mic. hyaline, smooth.

The fruiting bodies are attached to the sclerotia by thick, white, branched mycelial cords, that permeate the substance of the sclerotia.

As there is not a specimen of Polyporus Mylittae as far as we have found in any other museum of Europe or the United States, it is needless to add that we are particularly glad to get these from Mr. Cheel. The species was included in our Synopsis in Section 38 (Ovinus). It should be moved to Section 8 (Lignosus).

NOTE 270.—**Polyporus australiensis,** from E. Cheel, Australia. Published only last year by E. M. Wakefield in Kew Bulletin, 1914, page 157. It is the first specimen I have received although I saw at Kew several specimens from Australia, it having been determined mostly by Cooke, as Polyporus portentosus, Polyporus stipticus and Polyporus retiporus, three species that have no resemblance to each other and no resemblance to this. If there is any other subject on earth that had as little truth, or is as inaccurate as Cooke's work

on polypores, I do not know what it is unless it is Léveillé's or Kalchbrenner's. And Cooke is the author of the only text-book published on Australian fungi, a book that has about as much truth in it as is in Gulliver's Travels.

Mr. Cheel sends some interesting notes on the fresh specimens. "Pores orange red when fresh. Surface of pileus rich cream color tinged with ochre and orange red."

This specimen is ungulate, 8 x 12 cm. and 9 cm. thick. All of those at Kew are applanate, not over 2-3 cm. thick. The pores are not "concolorous" but much darker in dried specimens than the surface. Spores (not recorded by Miss Wakefield) are abundant in this specimen, globose, (or appearing in certain views as though collapsed) 3 mic. hyaline, smooth.

The flesh is pale yellow, soft and punky, and the plant is evidently closely related to Polyporus sulphureus. As it is always sessile though, I would place it in a different section, No. 89 of the Polyporus Synopsis. It approaches Polyporus amarus of California in several features.

NOTE 271.—**Fomes badius,** from D. Griffiths, Texas. The occurrence of this species in the United States has not heretofore been recorded. It is frequent in the tropics. Mr. Griffiths finds it on Acacia Greggii at Walde, Texas, and sends beautiful specimens. It is close, too close, to the common Fomes rimosus on locust, and the only point of difference is the larger pores, about 80 mic. in Fomes rimosus and nearly double in Fomes badius. Both plants are confined as far as known to leguminose trees and the pore difference alone hardly makes them different "species."

NOTE 272.—**Botrytis (sp.),** from B. T. Harvey, Colorado. A white mold growing on the larva of Colloides nobilis which is a round head borer in dead roots of scrub white oak. The Botrytis forms a white mold with numerous, minute, globose, hyaline spores 1½-2 mic. in diameter. On cutting the larva I find the inside a complete sclerotium, and I doubt not that this Botrytis is a preliminary stage of some Cordyceps. As we have no species of Cordyceps recorded from this host, I hope Prof. Harvey will keep a close watch for the Cordyceps form.

NOTE 273.—**Trametes variiformis,** from Dr. C. H. Kauffman, Ann Arbor, Michigan. The large pores are white, but the pileus surface colored. I made a mistake in Note 201 in referring to variiformis the white plant received from Mr. Ames. The original description of Peck, as well as my notes on the type in Peck's herbarium, calls for a plant with large, white pores and colored pileus surface. On referring again to my specimens, I find one lot of specimens I received from Mr. Weir and those I collected in Canada are Trametes variiformis with colored, pileus surface and white pores and one lot from Mr. Weir and from Mr. Ames with similar pores but white pileus surface are not.

NOTE 274.—**Polyporus alboluteus,** from Dr. C. H. Kauffman, Ann Arbor, Michigan. A little, resupinate piece but surely the same peculiar thing. Very common in Rocky Mountains, but very rare east of the Mississippi, this being the second collection so known. (cfr. Myc. Notes, page 379).

NOTE 275.—**Asterodon ferruginosum,** from Dr. C. H. Kauffman, Ann Arbor, Michigan. A specimen over 1½ cm. thick, and having seven distinct layers of teeth with context layers interposed after the manner of Fomes pore layers. I never saw it before when it had more than a single layer. I judge these are annual layers and that the plant is perennial. Prof. McGinty will certainly find it to be a "new genus" now.

NOTE 276.—**Polyporus intybaceus,** from Dr. C. H. Kauffman, Ann Arbor, Michigan. Growing on a Tamarac stump. Polyporus frondosus and Polyporus intybaceus are two species much confused (cfr. Letter 43, note 37) and this is the first time I have gotten the distinction clear. Polyporus frondosus is the common plant growing from a root stalk at the base of trees usually. It is said to have a sclerotium but that is doubtful. In England called intybaceus and so figured in Stevenson. The pileoli are suberect. Spores 3-3½ x 4-5 ovate, smooth.

Polyporus intybaceus is very rare and this specimen from Dr. Kauffman is the first of which I am sure. Fries records it as most rare, found in Halland. It occurs on wood; never can have a sclerotium. The pileus is very similar in color and flesh, but is broader and grows more horizontal. The spores are markedly narrow, viz. 2-2½ x 5, cylindrical rather than ovate.

I am glad to get an idea of the distinction between these two species for it is a subject that has bothered me from the start.

NOTE 277.—**Sclerotium of Polyporus umbellatus,** from Burt Leeper, Ohio. We have known for some time that this rare species is developed from a sclerotium, but have never seen it before. We are therefore very grateful to Mr. Leeper for the trouble in digging it up and sending it to us and for fine photographs of the plant. It is a true sclerotium, formed of irregular rhizome-like lobes, with a black surface and pale colored context. It reminds me much of the rhizome of Cimicifuga racemosa, known in the drug trade as Black Cohosh. Undoubtedly the sclerotia of this rare species produce fruiting bodies each year, and it is possible that Polyporus frondosus and Polyporus Berkeleyi are developed in the same way. We should be glad if any of our correspondents, meeting either of the latter species, would dig for the sclerotia and forward to us.

NOTE 278.—**Polyporus Rostkovii,** from B. Leeper, Ohio. This is one of the rarer polypores, and has been known in Peck's writings as Polyporus pallidus, which is probably same thing (with small scales). It was also called by Sumstein Polyporus Pennsylvanicus. For me it is a scaleless form (smooth) of Polyporus squamosus with which it has exactly

same color, habits, context, texture, pores, and spores. It is a rare form both in Europe and the United States.

NOTE 279.—**Cyathus microsporus,** from N. L. T. Nelson, Florida. It is very rarely that species of Cyathus are received from the United States that cannot be referred to one of the three common species. This is the second one I have received. The abundant spores are 6-8 mic. which is larger than that of type (4-6). In fact it is Cyathus Hookeri of my pamphlet, but I do not now feel that species based on a slight, spore-size difference should be maintained. Cyathus microsporus is a tropical type, and differs from the usual Cyathus species in its very small spores.

NOTE 280.—**Polyporus fumidiceps,** from L. Romell, Sweden. This came from Schenectady, N. Y., and is the first specimen I have gotten of the species. It is exactly same as Polyporus tephroleucus to the eye but differs in having ovate, transparent, guttulate spores $3\frac{1}{2}$ x 5. The spores of tephroleucus are allantoid $1\frac{1}{2}$ x 5. As the plants are so similar I have gone over the spores of all my collections labeled Pol. tephroleucus and did not find any that were not correctly determined. All have allantoid spores. One must be on the guard however, to distinguish fumidiceps from tephroleucus for there is only a slight spore difference.

NOTE 281.—**Polyporus quaitecasensis (?),** from Rev. C. Torrend, Brazil. If this plant has been named it is as above. I have mislaid my notes and material of the type, hence cannot compare it. But this plant has the most **strongly asperate** spores I ever saw in a Polyporus, and is closely related to Polyporus Berkeleyi. It was a large species, 20-30 cm. long, and specimen received was only a little piece. There are no notes as to whether it grew on log or tree, or whether it has a stipe or not. I hope it will not prove to be correct, for I should hate to perpetuate such a barbarous name as that.

NOTE 282.—**Polyporus asterosporus,** from Rev. C. Torrend, Brazil. As named by Rev. Torrend. For me a form of Polyporus rufescens with which it agrees in all macroscopic characters, to the eye is so similar that I could not believe at first there could be any microscopic difference. Polyporus rufescens is noted for having two kinds of spores, the basidial, globose, 6-8 mic. hyaline, smooth and always abundant; conidial spores 3-4 mic. hyaline, smooth. Polyporus asterosporus agrees also in having the same basidial spores, but the conidial spores same size, are strongly rough. In this connection, I do not doubt that Polyporus Marmellosensis (cfr. Syn. Stip. Pol. 176, fig. 473) also from Brazil, is a form of this same species. I failed to examine its spores, and Hennings does not note whether smooth or rough.

NOTE 283.—**"Fomes psila** is not rare here. It surely is the Fomes form of Trametes hydnoides."—C. Torrend.

While I am not surprised that Fomes psila is considered a Fomes form of Trametes hydnoides, it is a curious fact that Trametes hydnoides is a very common plant in Florida and Cuba, and Fomes psila has never been found there.

NOTE 284.—"I have no doubt as to the identity of **Trametes cupreo-rosea** and **Trametes Feei.** They grow on the same stumps abundantly in Brazil."—C. Torrend.

While the collections I have always seen have appeared very different and I have seen no connecting species, I could accept on sufficient evidence that both are the same species. At the same time it is hard for me to believe from the evidence that I have seen.

NOTE 285.—**Polyporus Ballouii,** from Rev. C. Torrend, Brazil. Letter 49, Note 118. In the original publication the spores were given too large. I judge 4 x 5 mic. is the largest spore I note now, which is slightly larger than the Brazilian plant (3 x 4) but surely same species. Since I published a name for the plant I have found that Murrill has a name for it from the West Indies. Polyporus tropicalis, perhaps prior, but not appropriate for a plant that grows around New York City.

NOTE 286.—**Polyporus (Amaurodermus) rudis,** from Rev. C. Torrend, Brazil. This has soft, spongy flesh, and was not at first recognized by me. On comparison however, I find it same as the Australian species, or at least so close it would not be practical to hold them different. It is very close to Polyporus rugosus, which is the only common species in this section in the East, and it is the first from the American tropics I have seen that is close to the Eastern species.

NOTE 287.—**Fomes Ohiensis.** (From Rev. C. Torrend, Brazil.) or Trametes as to this collection. It is frequent in the United States, but seems rarer in Brazil. It is quite close but a different species from Polyporus ochroleucus of the East, the only other similar species known.

NOTE 288.—**Matula poroniaeformis,** from Rev. C. Torrend, India. (Berk. as Autocreas). A most curious genus considered in detail in Myc. Notes page 390, fig. 228 to 230. Heretofore the genus has only been known from Ceylon and Brazil. It has been found in Brazil by Rev. Rick and called Micheneri Rompelii. A full history of the plant is given in location cited.

NOTE 289.—**Polyporus Sartwelli,** from James R. Weir, Montana. Compare Myc. Notes, page 463. I think it is an abnormal form of some other species.

NOTE 290.—**Polyporus stipticus,** sent by James R. Weir, Montana, as interpreted in a pamphlet I now have on press on Polyporus. It is a rare plant in Europe and this is

the first collection I have from the United States. The original of Persoon calls for a white plant with reddish surface stains, as this plant has. Stipticus of usual French mycology (in error) is a white plant (albidus) without any reddish tendency.

NOTE 291.—**Amaurodermus Brittoni.** When I saw this plant in New York, I thought it was Polyporus talpae. It has the same flesh, surface, color, etc. and both are large plants of the American tropics. Brittoni has a short, thick, subcentral stem and Polyporus talpae was of the merismus type but I thought this a stem variation. I find on examining however, that Amaurodermus Brittoni has very large, globose, smooth, pale colored spores 20 mic. in diameter. In a water mount they are collapsed, but swell out to normal form in weak, potash solution. They were described as "asperulate 7-8 mic." which is an evident error of observation.

NOTE 292.—**Polyporus glomeratus.** It was Cooke (originally) then Murrill, then Lloyd that got Polyporus glomeratus wrong, (Cfr. Note 204, Letter 54). Morgan got it right, as a specimen I have from him, so determined, demonstrates. While I believe I have never published to the contrary, excepting by inference in my statement that Dr. Kauffman was the only one who had found it, I wish to correct even this inference. It was the basis of Polyporus radiatus in Morgan's published record, but he afterwards evidently told me that this was an error for Polyporus glomeratus, for I recorded it in pencil, in my copy of his book, which I had forgotten and have just noticed.

NOTE 293.—**Polyporus scaurus.** From the Pilippines. This species, heretofore only known from Japan (cfr. Letter 44, Note 63) has been received from E. D. Merrill, Philippines. The specimens are only in pieces, no stipe indicated, but on comparison are exactly the same plant as from Japan. It was numbered 20,282 and determined as Fomes Kamphoveneri, to which it has little resemblance.

NOTE 294.—**The world does move.** A recent book which has reached our library, "Die Pilzkrankheiten der Landwirtschaftlichen Kulturgewächse," by Professor Dr. Jakob Eriksson of Stockholm, is the best work we have seen on plant diseases. It is practical, well illustrated, and one can get from such a book a good deal of information on the taxonomic side of the subject.

What impresses us most however, is the fact that from the beginning to the end of the book, no personal authority is cited for any plant name including the fungus names.

Writers who are investigating the pathological and practical side of the question are not interested in the quibbles that are going on as to what particular name the plant should be called in order that some particular man should have his name added to it. Let them adopt the name that represents the correct classification according to their views, both generic and specific, and omit the advertising part and mycological nomenclature will in a very few years take on a definite meaning that it will never get under the present system. The more these so-called taxonomists shuffle the names about, the more confusion is produced.

If the Pathological Division of the United States Department of Agriculture would take this view of the matter and employ a binomial alone to represent a fungus name, it would do much toward correcting the excessive abuse that has come up in this country. No country on earth is cursed with so many name juggles as we have at present.

LETTER No. 59.

Report of specimens received since last report. My best thanks are extended to those who have favored me with specimens.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. Lloyd,
224 West Court St.
Cincinnati, Ohio.

C. G. Lloyd,
95 Cole Park Road,
Twickenham, England.

Cincinnati, October, 1915.

BALLOU, W. H., New York:
Hydnum adustum.—Craterellus Cantharellus.

BARKER, W. E., New Zealand:
Fomes applanatus.—Crucibulum vulgare.—Paurocotylis pila.—Merulius Corium.—Clathrus cibarius, dried.—Pseudocolus Archeri, in spirits.—Thelephora Americana. (See note 295.)

BILGRAM, H., Pennsylvania:
Polystictus pergamenus.—Stereum hirsutum.—Xylaria polymorpha.

BRACE, L. J. K., Bahamas:
Lentinus villosus.

BREWSTER, LILIAN, New Hampshire:
Helvella sulcata.—Craterellus cornucopioides.—Peziza (Macropodia) macropus.

BURKE, DR. R. P., Alabama:
Polyporus vinosus.—Cauloglossum transversarium.—Rhizopogon rubescens.—Corticium chrysocreas.—Daldinia concentrica.—Hypoxylon Petersii.—Lycoperdon gemmatum.—Scleroderma tenerum.—Xylaria Hypoxylon.—Thelephora terrestris.—Fomes applanatus.—Polystictus fimbriatus. (See Note 296.)

CLELAND, Dr. J. B., Australia:
Hydnum corralloides.—Fomes robustus.—Fomes scutellatus. (See Note 297.)—Radulum Neilgherrensis. (See Note 298.)—Stereum obscurum.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

(See Note 299.)—Polyporus caesius.—Fomes conchatus.—Fomes squarrosus?—Phlebia strigoso-zonatum.—Fomes hornodermus. (See Note 300.)—Fomes applanatus.—Polyporus subolivaceus.—Polyporus salignus.—Fomes liniato-scaber. (See Note 301.)—Trametes rosea. (See Note 302.)—Stereum nitidulum.—Stereum pergamenum?

CRAIG, ERIC, New Zealand:

Cordyceps Craigii, which will be shortly published with illustration.

DAVIS, SIMON, Massachusetts:

Thelephora palmata.—Phallogaster saccatus.—Polystictus conchifer?—Polyporus caesius.—Polystictus perennis.

DEARNESS, JOHN, Canada:

Polystictus cinnamomeus.—Diatrype Macounii.—Paxillus Curtisii.—Hydnum Schweinitzii.—Poria fulvida.—Xylaria leprosioides as named by Rehm for Dearness. I would not like to say that it differs from corniformis.

DIEHL, WM. W., Iowa:

Hydnum velutinum.

FISCHER, DR. O. E., Michigan:

Hydnum subsquamosum.—Hydnum velutinum.—Hydnum repandum.—Polyporus cristatus. (=flavovirens, of Am. Myc.)—Thelephora vialis.—Polystictus cinnamomeus.—Clavaria fusciformis.—Polystictus perennis.

FORBES, CHAS. N., Hawaii:

Lycogala Epidendrum.—Polystictus (or Trametes) Persoonii.—Myriostoma coliformis.—Merulius tremellosus.—Fomes australis.—Fomes senex. (See Note 303.)—Schizophyllum commune.

GARMAN, H., Kentucky:

Daldinia concentrica.

HADLEY, ALICE M., Vermont:

Lenzites saepiaria.—Polystictus perennis.—Irpex lacteus.—Polystictus hirsutulus.—Fomes leucophaeus.—Daedalea unicolor.—Thelephora vialis.—Polystictus abietinus.—Polyporus Schweinitzii.—Schizophyllum commune.—Trametes suaveolens.—Spathularia flavida.—Scleroderma vulgare.—Irpex tulipifera.—Polystictus biformis.—Hydnum melaleucum.—Polyporus destructor.—Stereum spadiceum.—Trametes suaveolens.—Daedalea confragosa.—Polyporus betulinus.—Hymenochaete tabacina.—Polyporus fumosus?—Polystictus cinnabarinus.—Thelephora Caryophyllea.—Hydnum carnosum.—Polystictus pubescens.—Polystictus versicolor.—Polystictus hirsutus.—Hirneola auricula Judae.—Dacryomyces aurantia.—Hydnum rufescens.—Polyporus albellus.—Cantharellus floccopus.—Trogia crispa.—Polyporus elegans.—Panus stipticus.—Hypomyces Lactifluorum.—Fuligo varians.—Polystictus pergamenus.—Polyporus picipes.—Polyporus pubescens?—Favolus europaeus.—Hydnum scobiculatum.—Fomes conchatus.

HRDLICKA, DR. A., District of Columbia:

Daedalea confragosa.—Polystictus sanguineus. This is typical of the southern plant, not the northern plant Polystictus cinnabarinus.—Hydnum

ferrugineum.—Fomes reniformis.—Polystictus versicolor—Polystictus versicolor, pale form.—Stereum fasciatum.—Polyporus rutilans.—Hydnum velutinum.

KNAEBEL, ERNEST, New York:

Daldinia concentrica.—Hypomyces Lactifluorum.—Polyporus lucidus.—Daedalea confragosa.—Fomes applanatus.—Polystictus perennis.—Polystictus cinnabarinus. — Thelephora Caryophyllea. — Thelephora anthrocephala.

KRIEGER, DR. L. C. C., California:

Polystictus versicolor.—Phallus imperialis. (Eggs from Texas.)—Arachnion album. (See Note 304.)—Bovista plumbea.—Bovistella dealbata.—Calvatia lilacina.—Cyathus vernicosus?—Lenzites betulina.—Exidia recisa.—Laternea bicolumnata. (See Note 305.)

LEEPER, B., Ohio:

Hydnum rufescens.—Polyporus cristatus.—Thelephora vialis.—Thelephora Caryophyllacea.—Daedalea unicolor.—Tremella vesicaria.—Polyporus Berkeleyi. (See Note 306.)

LYMAN, G. R., District of Columbia:

Hexagona albida. (See Note 307.)—Cyathus byssisedeus.—Both adventitious.

MAINS, E. B., Michigan:

A nice collection of Hydnums, including the first specimen of the rare Hydnum scabripes I have ever gotten. The specimens were accompanied with valuable field notes.

Thelephora albido-brunnea.—Thelephora multipartita.—Hydnum velutinum.—Hydnum zonatum.—Hydnum scabripes.—Hydnum amicum.—Hydnum scobiculatum.

OLESON, O. M., Iowa:

Polyporus giganteus, (young).—Polyporus giganteus, (well developed).—Irpex pachylon.—Hydnum pulcherrimum.—Hirneola auricula Judae.—Polyporus albiceps.—Peziza occidentalis.—Xylaria polymorpha, (young).—Polyporus gilvus.—Exidiopsis alba.—Polyporus inamoenus.

OVERHOLTS, L. O., Pennsylvania:

Hydnum Scheidermayeri.—Tremella vesicaria.—Thelephora palmata.—Hydnum rufescens.

OVERHOLTS, L. O., from South Africa.

Daedalea Eatoni.

STOCKER, DR. S. M., Minnesota:

Polyporus elegans.—Polyporus picipes.—Lenzites betulina.—Polyporus brumalis.—Polyporus cerifluus.

TORREND, REV. C., Brazil:

Polyporus Puttemansii.—Polyporus discipes.—Polyporus guaraniticus.—Polyporus Blanchetianus.—Polyporus Patouillardii.—Stereum spadiceum.—Polyporus confusus. (See Note 308.)—Hirneola auricula Judae.—Lentinus blepharodes.—Cyathus Poeppigii.—Kretzschmania clavus. (See Note

309.)—Mycobonia flava.—Polystictus flabelliformis. (See Note 310.)—Fomes (Ganodermus) leucophaeus.—Pilocratera tricholoma.—Polystictus membranaceous?—Ganodermus Oerstedii.—Xylaria axifera. (See Note 311.)—Polyporus sterinus.—Polyporus (Ganodermus) polychromus.—Hypolyssus Montagnei.—Exidiopsis alba.—Hymenochaete tenuissimum?—Polyporus subfulvus.—Polyporus crispus.—Polyporus conchoides.—Favolus flaccidus.—Lenzites deplanata. (See Note 312.)—Poronia fornicata.—Lachnocladium cervinum.—Lachnocladium tubulosum. (See Note 313.)—Pterula aurantica.—Pterula subsimplex.—Tyblidium hysterinum.—Hymenochaete Kwangensis?—Trametes cubensis.—Polyporus altocedronensis. (See Note 314.)—Polyporus Cayennensis.—Hexagona leprosa.—Scleroderma tenerum.—Phlebia Moelleriana.—Trametes pruinata.—Polyporus immaculatus.—Polyporus supinus?—Fomes annosus.—Fomes marmoratus.—Polyporus fractipes.—Polyporus tricholoma.—Stereum perlatum.—Polystictus byrsinus.—Stereum Ravenelii.—Cordyceps amazonica.—Stereum affine.—Polystictus caperatus.—Radulum umbrinum.—Trametes malicola.—Polystictus sterioides.—Fomes Caryophylli.—Polyporus licnoides.—Auricularia mesenterica.—Fomes tropicalis.—Polyporus modestus.—Stereum membranaceum.—Irpex farinaceus.—Hexagona tenuis.—Hezagona Pobequini.—Hexagona Dybowski.—Trametes ochroflava. (The last four from Africa.)

NOTE 295.—**Thelephora Americana,** from W. E. Barker, New Zealand, as I had expected to publish it, should I publish a pamphlet I have now prepared on the genus Thelephora. It is Thelephora intybacea of Prof. Burt's recent paper, not of Europe, as far as I can learn, and certainly not of Fries.

NOTE 296.—**Polystictus fimbriatus,** from Dr. R. P. Burke, Alabama. The finest specimens I ever saw and the hymenium well developed and surely a polyporoid. Owing to the varying developments of the hymenium it has been classed in six different genera and discovered eight different times to be a new species. The tropical forms are thinner, more lacerate, and hymenium tends more towards Hydnum. At Berlin the type of "Thelephora" multifida from Porto Rico has the hymenium but little developed, but there is another specimen from Porto Rico (also at Berlin) which could be classed as a Hydnum. Although it has several times been named as "Hydnum," all the "types" tend more to Polystictus. We would class the various synonyms as follows:

Polystictus fimbriatus (type at Upsala), Synonyms, Polyporus Warmingii, Brazil; Craterellus sparassioides, So. America; Baccariella caespitosa, Brazil.

The thin, tropical, lacerate form might be called Polystictus multifidus (type at Berlin as Thelephora). Synonyms, Hydnum palmatum, So. America; Boletus pavonius, So. America. (In Saccardo as Polystictus, type preserved at Kew as Hydnum.) Hydnum plumarium, Cuba.

Of the eight different names under which the plant masquerades in the various museums of Europe, Banker in his recent "exhaustive" investigations found two of them and neither very "prior."

NOTE 297.—**Fomes scutellatus,** from Dr. J. B. Cleland, Australia. Exactly same macroscopically, but probably not same as to spores, and in that case unnamed. Spores are abundant; elliptical, 6-7x7-8½, subhyaline opaque, smooth. The spores of Fomes scutellatus are unknown to me, never being able to find them in dried specimens, which would indicate that it was not same as Australian plant. Fomes scutellatus is not surely known excepting from the United States.

NOTE 298.—**Radulum Neilgherrense,** from Dr. J. B. Cleland, Australia. I think this is the first record of this species from Australia, although assuming it is the same as Radulum mirabile, which it probably is, it is common in Africa and the East, but absent from American flora. It is no doubt common in Australia. Although there is some difference in the hymenial configuration, as shown by my photographs of the types, I believe in the end that the following will all be held to be the same species. Radulum mirabile, Ceylon; Radulum lirelloeum, Africa; Radulum Emerici and Radulum Neilgherrense, India, and Radulum Javanicum, Java. As the plant has abundant cystidia it was discovered to be a "new genus" and called Lopharia, also Thwaitesiella. (Cfr. Note 163. Letter 53).

NOTE 299.—**Stereum obscurum,** from Dr. J. B. Cleland, Australia. This can be held as a variety of Stereum spadiceum with which it agrees in bleeding hymenium, colored ducts, and all features excepting the surface hairs. They are dark (Mummy) brown, almost black instead of the light brown of the European form. This contrast of color makes the plant appear quite different, but in the essentials they are practically the same.

NOTE 300.—**Fomes hornodermus,** from Dr. J. B. Cleland, Australia. This is a thick, ungulate specimen, but I note an orange stain under the crust which in our Fomes pamphlet we held to be a feature of Fomes martius, as different from Fomes hornodermus. Perhaps Fomes martius is only a thin form of Fomes hornodermus.

Miss Wakefield, in a letter to me, states that she thinks that the Australian Fomes with the orange tint under the cuticle is Fomes hemitephrus, and not Fomes martius as I have held it in my Fomes Synopsis.

NOTE 301.—**Fomes liniatoscaber,** from Dr. J. B. Cleland, Australia. To the eye in every feature, surface, color, context color, pores, this is so much like Trametes strigata that I thought it must be a Fomes form of that species. The pores are stratified and it has setae on the hymenium and belongs to section 70 of the Fomes pamphlet. Trametes strigata has no setae as far as I can find. When I observed the type of Fomes liniatoscaber, which is in the British Museum, I thought it a Fomes form of Trametes strigata, but I find on examination that it agrees with this specimen from Dr. Cleland in having setae on the hymenium. It is a true Fomes with stratified pores, but was omitted from my Fomes Synopsis as I was under the impression then that it was only a Fomes form of Trametes strigata.

NOTE 302.—**Trametes rosea,** from Dr. J. B. Cleland, Australia. Context punky, dry, pale salmon, (light ochraceous salmon). Pores white, medium, large, ½mm. diameter, indistinctly stratified, forming imperfect layers in the manner of Fomes annosus. Spores 3x5 mic. hyaline, smooth.

The specimen received from Dr. Cleland is imperfectly developed evidently. It is largely resupinate with imperfect pileus. The species belongs in the Trametes section (of 63), considered in our Fomes Synopsis, page 224. It agrees exactly with Trametes roseola as to context color, but differs from all other species in this section in having large pores. Its method of pore development is much like Fomes annosus.

NOTE 303.—**Variations of Fomes senex.** A fine series of specimens from C. N. Forbes, Hawaii, illustrates variations in form and surface of this common, tropical species. Usually Fomes senex, as described in our Fomes pamphlet, is applanate with long pores almost reaching the crust. We have many collections of this from the East, Africa, Brazil, etc. Most of Mr. Forbes' specimens are ungulate, with several layers of shorter pores. One had uneven surface, due probably to the annual layers overlapping from its position of growth. All have the usual context color, texture, setae, pores, etc., the essentials of a species. The spores of one specimen (1075) were abundant, globose, hyaline, 4-5 mic. guttulate. Rarely we find spores in Fomes senex and sometimes they are deeply colored. We are unable to explain this spore discrepancy and have already commented on it in our Fomes Synopsis, page 259.

NOTE 304.—**Arachnion album,** from Dr. L. C. C. Krieger, California. A rare puff ball everywhere, and this is the first specimen from the Pacific Coast. I have a few specimens from Ohio, Texas, Mexico, Brazil, Ecuador, Australia, and South Africa. Also one collection from Italy, which is the only one known from Europe.

NOTE 305.—**Laternea bicolumnata,** from Dr. L. C. C. Krieger, California. This is the first Laternea known from the Pacific Coast. It grew in garden soil at Chico, Cal. The species was named from Japan, and this is its first known occurrence in America.

NOTE 306.—**Polyporus Berkeleyi with sclerotium,** from B. Leeper, Ohio. We are very grateful to Mr. Leeper for his aid in solving the problem of the sclerotia of the merismatoid section of Polyporus. Last month he sent us the sclerotium of the rare Polyporus umbellatus. Now we have a sclerotium of the more common Polyporus Berkeleyi, the sclerotium of which was, however, as little known. It is a true sclerotium, about two inches in diameter and five inches long. It resembles a thick rhizome, and is no doubt developed in the same way. The plant apparently develops its fruit each year from the sclerotium, and sends out a new sclerotium from which the fruiting body is developed next year. This is a process similar to the development of rhizomes in flowering plants. In fact the sclerotia of this group of fungi and the rhizomes of flowering plants are analogous bodies. Our best thanks are tendered to Mr. Leeper for the specimens illustrating this feature, and for beautiful photographs.

NOTE 307.—**Hexagona albida,** from G. R. Lyman, District of Columbia. Developed on a bamboo flower pot from Manila in a glass house at Washington. This is the only white Hexagona known, and is widely distributed in the tropics. It takes Lenzitoid forms also. (Cfr. my Synopsis of Hexagona, page 29, fig. 314).

NOTE 308.—**Polyporus confusus,** from Rev. C. Torrend, Brazil. Cfr. Stipitate Polyporoids, page 177, fig. 476. Heretofore only known from the type specimen at Kew from Louisiana.

NOTE 309.—**Kretzschmania clavus,** from Rev. C. Torrend, Brazil. I doubt if there is really more than one species of Kretzschmania. Thirty-three (alleged) species have been proposed, but all the specimens I saw and photographed in the various museums of Europe impressed me as being very much the same. They differ some in the size of the heads and prominence of the ostioles, but I think they are all virtually the same. The original species were Kretzschmania caenopus from Cuba and Kretzschmania clavus from Brazil. Both were by Fries (as Sphaeria) and the former had smaller heads than the latter. Both, I think, were the same otherwise.

NOTE 310.—**Polystictus flabelliformis,** from Rev. C. Torrend, Brazil. From Southern Brazil, legit. Rick. This is the first American specimen that I have seen that agrees

with the common, Eastern, tropical plant. The entire section (Microporus), so frequent in the East, is very rare in American tropics.

NOTE 311.—**Xylaria axifera,** from Rev. C. Torrend, Brazil. There are two similar and most beautiful little species of Xylaria in Brazil that have been confused and given (in error) by Theissen as synonyms. Both were named by Montagne, viz: Xylaria axifera and Xylaria aristata. Both have filiform stems which are prolonged beyond the little globose or subglobose heads. They can be distinguished as follows:

Xylaria axifera has always smooth, globose heads, pale stems, indistinct ostioles, and few perithecia, and grows on the dead stems of herbaceous plants.

Xylaria aristata has usually oblong, tubercular heads, black stems, prominent ostioles, and grows on dead leaves.

I found no spores in sections of either that I examined. I have a nice collection of Xylaria aristata from Madame Anna Brockes, and of Xylaria axifera from Rev. C. Torrend.

NOTE 312.—**Lenzites deplanata,** from Rev. C. Torrend, Brazil. I have always supposed deplanata was the same as the common Lenzites repanda of the tropics as are the many specimens I have seen so named in the museums. There is no type of deplanata in existence. This specimen is surely not Lenzites repanda, and as it agrees with the description of L. deplanata, which came from Brazil, we are justified in taking this name. It differs from Lenzites repanda in the gills, which are exactly the same as those of Deadalea gibbosa.

NOTE 313.—**Lachnocladium tubulosum,** from Rev. C. Torrend, Brazil. This was the original species of Lachnocladium, and the one from which the idea of the genus was drawn. The stems and branches are clothed with a dense, velutinate coat of matted hyphae. At the present day there is hardly a definite idea connected with the genus. The spores are piriform, hyaline, 6x12 mic. The branches of this collection are more slender than those of the original specimens at Upsala, but surely the same.

NOTE 314.—**Polyporus altocedronensis,** from Rev. C. Torrend, Brazil. This is so close to the eye to Polyporus leucospongia (cfr. Polyporus Synopsis, page 322) that in my pamphlet I gave them as synonyms. I was aware at the time that it was improbable that a plant growing in Cuba should be the same as plant only known from the high altitudes in America. With the nice specimen from Rev. Torrend I was enabled to make a microscopic comparison, and find that they are not the same. The spores are different, 3-3½ globose, appearing slighdly rough in altocedronensis, 6-8 mic. smooth in leucospongia. The pores in the type at New York appeared to me about the same as those of leucospongia, but in Rev. Torrend's specimen they are smaller.

NOTE 315.—**Polyporus graveolens.** From observations on the growing plant, L. O. Overholts finds that this is an annual plant as I suspected (cfr. Note 34, Letter 43, also Note 140, Letter 49), and hence should be called Polyporus graveolens, not Fomes graveolens. He has observed many sporophores on a snag where he had collected all a couple of years ago. A considerable number were dead, and in no case was there any evidence that the fungus is perennial. It is evidently a plant of rapid growth. If ever observed growing, it will be found that first it forms its "mycelial core," around which a little context is formed and then the pileoli. There are only two polypores known that have this "mycelial core," viz: Polyporus graveolens and Polyporus rheades. The mycelial core is a different texture from the context. For a long while after I observed it I thought it was diseased condition, and Mr. Long first gave me a suggestion as to what its true nature is.

NOTE 316.—**Hydnum imbricatum and related species.** In Sweden the large, dark Hydnum (H. imbricatum) with conspicuous scales is "ubique vulgare" in the pine woods. In the young plant the scales are firm and rigid, but when old sometimes detersive. The only specimen I have from the United States that corresponds exactly is from James R. Weir, Montana.

Our usual plant is paler with smaller scales. This is Hydnum subsquamosum, as I found it (once only) in Sweden. My Swedish specimens are young, but seem the same as our American plant. Professor H. C. Beardslee has observed the development of this plant and favored me with a series of specimens collected from the same group at different ages. When old it changes much. The pileus becomes smooth, the teeth remarkably long, ¾ inch. It hardly seems possible that it is the same plant, and yet Professor Beardslee presents specimens and photographs to prove it. The young condition of this plant was called Hydnum Underwoodii by Banker; the old condition is the basis of most of the records of Hydnum laevigatum. We have labeled our young specimens Hydnum subsquamosum, and the old, long-spined specimens, Hydnum laevigatum, reserving the question of their being one species. Barla's figure of Hydnum laevigatum seems to be Beardslee's old plant, and I am sure that I have Hydnum subsquamosum right in Europe. I wish some one in Europe would watch their development.

There is another plant in the United States of which the dried specimens, as to surface, scales, color, and paler spines, look much like Hydnum subsquamosum. This is Hydnum fuligineo-violaceum (cfr. Letter 123, Note 49). This is usually more slender and when fresh has blue at the base of the stem. The latter character disappears in dried specimens so that they are difficult to distinguish.

NOTE 317.—**Neuman's Polyporaceae of Wisconsin.** "What is your opinion about this book? I have just received a copy."—O. M. O.

Our opinion is that it is a very fair presentation of the traditions and mistakes of American Mycology that were current about fifteen or twenty years ago. A great deal has been learned on the subject since those days, and the author has apparently not

awakened from his Rip Van Winkle sleep. Evidently a number of years ago, he sent specimens to Bresadola, Ellis, Morgan, and Peck, and the book is based on the specimens so named. Where different men sent him different names for same plant, it appears under both names in the book. For instance, his first two Fomes, F. populinus and F. connatus, the former determined no doubt by Bresadola, the latter by some American, but both the same plant, and every one who is informed on the subject knows that Fomes populinus is only a name that Bresadola proposed to substitute for Fomes connatus, and never claimed that it was anything different. Still, both species appear in Neuman's book with two pages of text, showing what the "difference" is.

I understand that Dr. Kauffman is working on a book on the Polyporus of Michigan. When it comes out I expect it to be worth having, for Dr. Kauffman is not twenty years back on the subject. The most commendable feature of Neuman's book is the fact that he does not bother any with Murrill's jargons. He has evidently heard some vague rumor about Murrill's "work" on the subject, but did not consider them of enough importance to devote any space to them. Neuman's nomenclature is very conservative, and if it were not for the old errors of American Mycology that still persist in the book, it would be a pretty fair work.

NOTE 318.—**Polyporus udus,** as illustrated by Junghuhn in Hoeven & de Vries Tijdschrift, 1840, is same plant that I collected in Samoa and was named Polyporus fusco-maculatus in Mycological Notes, page 49. The picture is exactly the fresh plant as I well remember it in Samoa.

NOTE 319.—**Polyporus radiatus,** from Burt Leeper, Ohio. It has been lately claimed that this plant has a sclerotium. I doubt whether it is a sclerotium or an extended root stalk. The subject needs further observation, and as we occasionally find this unique species in our woods we will dig it up next time we find it.

NOTE 320.—**Hydnum velutinum,** from Miss Ann Hibbard, Massachusetts. These were received fresh with a note, "can squeeze out red juice." I did not know before that was a character of this species. Hydnum ferrugineum is the only species that has the reputation of exuding reddish drops, but this, with its even pileus, cannot be Hydnum ferrugineum.

NOTE 321.—**Irpex mollis,** from L. O. Overholts, Pennsylvania. Very close to Irpex pachylon (called Irpex crassus in American traditions), and heretofore confused by me, but differs in slightly reddish cast in drying and spores 3x5. They are globose, 4 mic. in the latter.

NOTE 322.—**Strobilomyces pallidus in our Southern States.** From F. A. Wolf, Alabama. We have received from F. A. Wolf, Alabama, what appears to be the above species, heretofore only known from Australia, and an addition to our scanty Strobilomyces native flora. The common Strobilomyces strobilaceus of the Northern States has dark, fuliginous scales, and we were impressed at once with the pale scales of these specimens. On examination we find it has entirely different spores, viz: Oblong, 7x20 mic. colored, *smooth* with fine striations, and on comparison seems to be same as Australian species, excepting a more slender stem. Berkeley based the genus Strobilomyces on the globose spores (cfr. Note 82, Letter 45), hence this plant does not belong to the genus, and our friend McGinty proposes for it the name Strobilofungus pallidus (Cooke), McGinty. However, as by use the name Strobilomyces has acquired a different meaning from the original definition, (cfr. note cited) we believe it would be better to allow it to stand.

There are several species of Strobilomyces in Australia, but Strobilomyces strobilaceus (and a doubtful species S. floccopus) are the only species heretofore attributed to the United States or Europe.

NOTE 325.—**Lachnocladium Micheneri,** from Miss A. Hibbard, Massachusetts. As usually known in American mycology and surely correct. It is often found growing over leaves and is noteworthy from the abundant, white mycelium at the base of the plant. The stem is pubescent, hence classed as Lachnocladium by Berkeley, but this genus is very indefinite as found in Saccardo. It is a question if it is not better classed as Clavaria. Bresadola claimed that it is the same as Clavaria byssiseda of Europe also that the American names Clavaria leucotephra, Clavaria fragrans, and Clavaria pinophila are synonyms, all of which is doubtful to me. As to Clavaria byssiseda, which I do not know in Europe, it does not appear to be the original figure by Persoon, and as to others cited, viz: Holm and Patouillard, it has no possible resemblance to them. I shall therefore call it Lachnocladium (or Clavaria) Micheneri.

NOTE 324.—**Hydnum fasciatum,** from Miss Ann Hibbard, Massachusetts. Heretofore only known from a single specimen in Peck's herbarium. I thought when I saw it that it was a good species, but Miss Hibbard's fine collection shows that it is only a strongly zoned form of Hydnum zonatum, for zoned and unzoned plants are in the same collection. The plant has hyaline, tubercular spores, but does not belong in the "genus" (Phellodon sic) where Banker places it. While the spores are hyaline, the spines are deeply colored and the plant should be classed by the side of ferrugineum and scobiculatum. This is probably the original of Hydnum zonatum.

NOTE 325.—**Hydnum aurantiacum**, from L. W. Riddle, Massachusetts. In the "broad sense," as the species is generally considered, and as I found the plant abundant in Sweden, next to the orange color the most prominent feature was its strongly colliculose pileus and subconical form. Sometimes we have this colliculose form in the United States, but most of my collections as received from Mr. Riddle, and recently from Mr. Ballou, have a relatively even, thin pileus, and at first sight appear quite different. In going over my lot of specimens, however, I find so many intermediate collections that I believe it is not practical to distinguish these two forms even by varietal names.

WOODSIDE PARK IS GIVEN TO PUBLIC FOR PICNIC GROUND

Curtis G. Lloyd, a scientist of Cincinnati, has purchased the pretty woodland tract on the Southern Railway beyond Erlanger, Ky., and hereafter it will be a free gathering place for all worthy organizations and nature lovers.

For twenty-five years the Erlanger and Woodside Land Companies used the park as a shady spot for their excursionists to picnic while viewing the thousands of lots. These projects having been consummated, the ground has been vacant for some years and now Mr. Lloyd comes along and proposes to endow this gem of shadeland, so that it will forever remain a resort for the people without fees or rentals.

If proper appreciation is shown he contemplates adding shelter pavilions and other accommodations for churches and schools that come to the place to picnic.

Like the Lloyd Botanical Library on Court street, all expenses are paid by this philanthropist and arrangements for its perpetuation after his death will be made.

Erlanger, Elsmere and Florence can name this attraction as another reason why the C., N. & C. Railway should extend its line to that thriving section.

Temporarily George C. Bloss, with whom Mr. Lloyd made the deal for the land, will manage the property for the benefit of all who wish to quietly enjoy its charms.—The Commercial Tribune, Cincinnati, October 9, 1915.

The above article, while not strictly mycological, will throw a sidelight on the character of the author of these Letters, perhaps, not generally known to our readers.

LETTER No. 60.

Acknowledgment of specimens received since last report. My best thanks are extended to those who favored me with specimens. Some of the notes referred to in this letter have been published in the previous letter, No. 59, and some notes that will be illustrated with photographs will be published in the next issue of Mycological Notes.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign corespondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
95 Cole Park Road,
Twickenham, England.

Cincinnati, Ohio, December, 1915.

ALLEN, L. C., Massachusetts:

Lenzites saepiaria.—Polystictus circinatus.—Hydnum fragile. (See Note 326.)—Phlebia strigoso-zonata.—Polystictus perennis.—Fomes connatus.—Daedalea confragosa.—Polyporus elegans.—Polystictus hirsutulus.—Polystictus versicolor.—Hydnum melaleucum.—Thelephora terrestris.—Polyporus betulinus.—Hydnum mirabile.—Hydnum ferrugineum?—Polystictus Montagnei.—Polyporus betulinus.—Hydnum amicum.—Hydnum aurantiacum.—Stereum ochraceoflavum.—Hydnum carnosum?—Stereum fasciatum.—Stereum (Hymenochaete) tabacinum.

AMES, FRANK H., New York:

Hydnum repandum.—Hydnum subsquamosum.—Hydnum laevigatum.—Hydnum fuligineo-violaceum.—Hydnum scabripes.—Hydnum mirabile.—Hydnum scobiculatum.—Hydnum velutinum.—Hydnum erinaceum.—Polyporus Amesii. (See Note 327.)—Hydnum Schiedermayeri.—Hydnum ochraceum.—Hydnum pulcherrimum.—Hydnum septentrionale.

ARANZADI, PROF. T. DE, Spain:

Polyporus varius.—Polystictus perennis. (See Note 328.)

BALLOU, W. H., New York:

Trametes malicola.—Hydnum pulcherrimum.—Polyporus intybaceus. (See Note 329.)—Phlebia radiata.—Polyporus adustus.—Polyporus caesius.—Polyporus hirsutus.—Hydnum zonatum.—Hydnum scabripes.—Hydnum

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

fuligineo-violaceum.—Hydnum amicum.—Hydnum velutinum.—Hydnum nigrum.—Polystictus versicolor.—Polyporus Schweinitzii.—Daedalea unicolor.—Polyporus Spraguei.—Polyporus cristatus.—Polyporus rutilans.—Hydnum albidum.—Hydnum aurantiacum.—Polyporus (Ganodermus) sessilis.—Merulius tremellosus.—Calvatia craniiformis.—Panus strigosus.—Calvatia elata.—Polyporus dryadeus.—Fomes applanatus.—Hydnum Caput-Ursi.—Ustulina vulgaris. conidial.—Hydnum rufescens.—Polystictus cinnamomeus.—Favolus europaeus.—Daedalea unicolor.—Hydnum putidum.—Hydnum subsquamosum.—Hydnum scobiculatum.—Polyporus glomeratus.—Polyporus frondosus.—Polyporus sulphureus.—Polystictus hirsutus.—Polyporus Ballouii.—Polyporus radicatus.—Poria betulina.—Polyporus tephroleucus??—Bulgaria inquinans.—Polystictus conchifer.—Polyporus malicolus.—Polyporus floriformis.—Hydnum mirabile.

BARKER, W. E., New Zealand:

Daldinia concentrica.—Lycoperdon pratense.—Crucibulum vulgare.—Fomes applanatus.—Fomes senex.—Bovistella ? cuprica. (See Note 330.)

BEAN, PROF. A. M., Oregon:

Polyporus sulphureus.—Polyporus Schweinitzii.

BEARDSLEE, H. C., North Carolina.

Thelephora palmata.—Hydnum putidum.—Hydnum amicum.—Polystictus cinnamomeus.—Helvella crispa.—Thelephora multipartita.—Tremella vesicaria.—Tremellodendron pallidum.—Hydnum rufescens.—Polyporus albellus.—Hydnum subsquamosum.—Hydnum laevigatum.

BLACKFORD, MRS. E. B., Massachusetts.

Tremellodendron merismatoides.

BRANDEGEE, T. S., California.

Tylostoma Americanum.

BRENCKLE, J. F., North Dakota.

Polystictus pergamenus.—Fomes igniarius.—Irpex lacteus.

BURKE, DR. R. P., Alabama.

Hydnum adustum.—Stereum subpileatum.—Polyporus amygdalinus. (See Note 331.)—Lenzites betulina.—Fomes marmoratus.—Polyporus supinus.—Polystictus ochraceus.—Polystictus elongatus.—Irpex lacteus.—Clavaria pyxidata.—Irpex concrescens. (See Note 332.)—Xerotus lateritius.—Polystictus hirsutulus.—Polyporus adustus.—Xylaria corniformis.—Stereum diaphanum.—Stereum Ravenelli.—Polystictus hirsutus.—Fomes Calkinsii.—Hydnum ochraceum.—Polyporus gilvus.—Fomes Meliae. (See Note 333.)—Polystictus fimbriatus.—Strobilomyces strobilaceus.—Polystictus petaliformis.—Hirneola auricula-Judae.—"Isaria" flabelliformis.—Polyporus rhipidium.—Bulgaria rufa.—Exidiopsis alba.—Thelephora multipartita.—Hydnum pulcherrimum.—Poria obliqua.—Polyporus Curtisii.—Polyporus biformis.—Polyporus rutilans.—Merulius Corium.—Polystictus pubescens.—Polyporus Schweinitzii.—Peniophora cinerea.—Craterellus Cantharellus.—Polystictus conchifer.—Stereum Leveilleanum.—Paxillus panuoides.—Stereum spadiceum.—Polysaccum pisocarpium.—Lenzites saepiaria.—Polyporus giganteus.—Polyporus rufescens.—Polyporus Spraguei.—Crucibulum vulgare.

—Cyathus striatus.—Polystictus Friesii.—Calocera cornea.—Peziza occidentalis.—Polystictus versatilis.—Polystictus sanguineus.—Geaster rufescens.—Polyporus poculus.—Tremellodendron pallidum.—Polyporus distortus.—Cyathus stercoreus.—Fomes fraxineus. (See Note 334.)—Guepinia spathularia.—Polystictus petaloides.—Stereum fasciatum.

CONANT, J. F., Massachusetts.
Polyporus Montagnei.—Polyporus confluens.—Polyporus ovinus. (See Note 335.)

CRADWICK, WM., Jamaica.
Trametes hydnoides.

CROSWELL, EMILY S., Massachusetts.
Thelephora anthrocephala?

DAVIS, SIMON, Massachusetts.
Hydnum mirabile.—Polyporus albidus.

DICKSON, B. T., New York:
Daedalea confragosa.

DUPRET, H., Canada.
Daedalea confragosa.—Stereum spadiceum?—Polystictus cinnabarinus.

DUTHIE, MISS A. V., South Africa.
Exidia purpureo-cinerea. (See Note 336.)—Exidia caespitosa. (See Note 337.)—Xerotus fuliginosus. (See Note 338.)—Xylaria fistulosa.—Lentinus strigosus.—Tremella fusiformis.—Stereum laxum. (See Note 339.)—Tylostoma cyclophorum.—Myriostoma coliformis.—Stereum hirsutum.—Trametes hispida.—Cyathus pallida.—Bovistella aspera.—Arachnion album.—Arachnion Scleroderma. (This will be published with illustration in Mycological Notes. It is the most novel addition to the puff-balls that ever came to me.)—Polystictus Telfarii.—Stereum caperatum. (Will be published in Mycological Notes and illustrated.)—Lenzites betulina.—Lenzites Junghuhnii.—Rhizopogon luteolus.—Polystictus versicolor.—Kalchbrenneri corallocephala.—Hexagona albida.

DUTRA, DR. J., Brazil.
Auricularia mesenterica.—Polyporus fruticum.—Polyporus licnoides.—Fomes pectinatus.—Lenzites indica.—Polystictus pinsitus.—Polyporus stereinus.—Polyporus ectypus.—Stereum lobatum?—Hirneola auricula-Judae. (See Note 340.)—Polyporus ostreiformis.

EVANS, I. B. POLE, South Africa.
Stereum Kalchbrenneri. (See Note 341.)—Polyporus scruposus.—Fomes Caryophylli.—Fomes rimosus.—Fomes badius.—Stereum hirsutum.—Daedalea Eatoni. (See Note 342.)—Lenzites betulina.—Polystictus sanguineus.—Daedalea Dregeana. (See Note 343.)—Polyporus gilvus.—Irpex vellereus.—Hydnum Henningsii.—Trametes hispidus.—Trametes lactinea.—Daedalea moesta.—Polystictus polyzonus.—Polyporus subradiatus. (See Note 344.)—Polyporus lucidus.—Polyporus Curtisii.—Polyporus resinaceus.—Fomes applanatus.—Polyporus (Ganodermus) mollicarnosus. (See Note 345.)—Polyporus (Ganodermus) colossus.

FISHER, G. CLYDE, New York:
Lycoperdon cruciatum.

FLOCKTON, MISS MARGARET L., Australia.

Stereum illudens. (See Note 346.)—Stereum hirsutum.—Polyporus arcularius. (See Note 347.)—Polyporus decipiens. (See Note 348.)—Trametes lilacino-gilvus.—Polyporus rhipidium.—Polyporus Hartmanni. (See Note 349.)—Polystictus sanguineus.—Stereum Leichardtianum. (See Note 350.) —Polystictus oblectans. (See Note 351.)—Lycoperdon piriforme var. flavum. (See Note 352.)—Polyporus gilvus.—Hexagona similis. (See Note 353.)

Miss Flockton sends beautiful specimens, nicely dried and selected.

GRANT, J. M., Washington.

Fuligo septica —Fuligo violacea.—Fuligo muscorum.—Schizophyllum commune.—Polyporus picipes.—Polystictus abietinus.—Stereum hirsutum. —Fomes applanatus.—Fomes pinicola.—Polyporus (Ganodermus) Oregonensis.—Fomes pini.—Fomes leucophaeus.—Polyporus elegans.—Aleurodiscus amorphus.—Xylaria Hypoxylon.—Bovista pila.—Bovista plumbea.—Bovista plumbea var. nigrescens. (See Note 354.)—Hydnum coralloides.—Polyporus Schweinitzii.—Stereum fasciatum.—Polyporus Berkeleyi.—Polyporus stipticus.—Lycoperdon atropurpureum.—Lycoperdon cepaeforme.—Trametes carnea.—Spathularia flavida.

GRIFFIN, D. B., Vermont:

Polyporus rutilans.—Polyporus gilvus.—Polyporus albiceps.—Polyporus melanopus.—Polyporus adustus.—Polystictus pergamenus.—Daedalea unicolor.—Stereum spadiceum.—Polystictus hirsutus.—Fomes connatus.—Corticium salicinum.—Polyporus pubescens.—Fuligo septica.—Polyporus occidentalis.—Polyporus albellus.—Cyathus striatus.—Polystictus conchifer.—Panus torulosus.—Fomes scutellatus. (See Note 355.)

GRIFFITHS, D., District Columbia:
Fomes pinicola.—Polystictus abietinus.

HADLEY, A. M., Vermont:

Polystictus cinnamomeus.—Polystictus conchifer.—Daedalea unicolor.—Trametes suaveolens.—Fomes leucophaeus.—Polyporus malicolus.—Lycoperdon gemmatum.—Polyporus albellus.—Polyporus floriformis?—Lenzites saepiaria.—Lenzites betulina.—Polystictus hirsutus.—Daedalea unicolor.—Polystictus pergamenus.—Polyporus adustus.—Polyporus brumalis.—Polyporus radicatus.—Polystictus abietinus.—Stereum purpureum.—Trametes heteromorpha. (See Note 357.)—Thelephora Caryophyllacea.—Stereum fasciatum.—Tremella vesicaria.—Polyporus picipes.—Polystictus cinnabarinus. —Helotium citrinum.—Polystictus versicolor.—Trogia crispa.—Polyporus albellus.—Polystictus pergamenus.—Polyporus dichrous.—Hydnum ochraceum.—Polyporus radiatus.—Polystictus planus. (See Note 358.)—Polyporus elegans.—Polystictus pubescens.—Hydnum pulcherrimum.—Polystictus biformis.—Polyporus semisupinus.—Polystictus circinatus.—Favolus europaeus.—Lycoperdon subincarnatus.—Peziza scutellatus.—Hydnum compactum.—Hydnum carnosum.—Trametes heteromorpha.—Polystictus versicolor.—Panus stipticus.—Poria sinuosa.—Hydnum scobiculatum.—Irpex lacteus.

HAMILTON, A. G., New South Wales:

Polystictus occidentalis.—Schizophyllum commune.—Stereum lobatum. —Lentinus fasciatus.—Hirneola auricula-Judae.

HANMER, C. C., (Collected in Maine):

Sistotrema confluens. (See Note 359.)—Polystictus perennis.—Polyporus brumalis.—Polyporus adustus.—Lycoperdon gemmatum.

HANMER, C. C., Connecticut.

Polyporus adustus.

HARVEY, B. T., Colorado:

Aecidium Clematidis.—Merulius Corium.—Polyporus volvatus.—Fomes Laricis.—Polystictus abietinus.—Polyporus amarus. (Wood affected with the "pin rot." Specimens of the fungus are much desired.)

HEDGCOCK, GEO. G., District of Columbia:

Tremellodon gelatinosum.

HIBBARD, MISS ANN, Massachusetts:

Hydnum velutinum. (See Note 320, Letter 59.)—Lachnocladium Micheneri. (See Note 323, Letter 59.)—Hydnum fasciatum. (See Note 324, Letter 59.)—Hydnum concrescens.—Hydnum Schiedermayeri.—Polyporus Schweinitzii.—Polystictus Montagnei.—Hydnum melaleucum.—Hydnum amicum.—Hydnum Peckii. (See Note 360.)—Hydnum carnosum.—Xylaria polymorpha.—Cudonia circinans.—Helvella lacunosa.—Thelephora Americana.—Tremellodendron merismatoides.—Tremellodendron pallidum.—Tremellodendron Cladonia.—Craterellus cornucopioides.

HOUGHTON, H. E., India:

Polyporus lucidus.

HONE, DAISY S., Minneapolis.

Polystictus pergamenus.—Daedalea unicolor.—Polystictus pubescens.—Stereum fasciatum.—Stereum hirsutum.—Polystictus versicolor.—Lenzites betulina.—Lenzites saepiaria.—Panus stipticus.—Polyporus semisupinus.—Polystictus biformis.—Schizophyllum commune.—Favolus europaeus.—Favolus microsporus.—Daedalea confragosa.—Polyporus gilvus.—Stereum spadiceum.—Daldinia concentrica.—Xylaria polymorpha.—Polystictus cinnamomeus.—Tremellodendron pallidum.—Merulius tremellosus.—Clavaria stricta.—Polystictus cinnabarinus.—Hyphomyces Lactifluorum.—Polyporus betulinus.—Polyporus picipes.—Lachnea scutellata.—Peziza occidentalis.—Boletinus pictus.—Geoglossum hirsutum.

JONES, KATE A., New Hampshire:

Polystictus velutinus.—Polystictus conchifer.—Polystictus perennis.—Polystictus hirsutus.—Polyporus elegans.—Hyphomyces Lactifluorum.—Polyporus adustus.—Stereum fasciatum.—Tremellodendron pallidum.—Daedalea confragosa.—Lenzites saepiaria.—Fomes fomentarius.—Fomes leucophaeus.—Daedalea unicolor.—Polystictus versicolor.—Polystictus cinnabarinus.—Lenzites betulina.—Polyporus lucidus.—Chlorosplenium aeruginosum.

LATHAM, ROY, New York:

Hydnum velutinum.—Pleurotus striatulus.—Polyporus (Ganodermus) lucidus.—Poria pinea.—Panus torulosus.—Tremellodendron pallidum.—Crucibulum vulgare.—Polyporus Spraguei?—Scleroderma aurantiacum.—Polystictus versicolor.—Polyporus albellus.—Stereum (Hymen.) tabacinum.—Fomes (Ganodermus) leucophaeus.—Polyporus squamosus.—Sphaerobolus stellatus.—Clavaria fusiformis.—Trametes protracta.—Dacryomyces aurantia.

LEEPER, BURTT, Ohio:

Sebacina dendroidea, or "Thelephora dendroidea" as called. There is but little doubt in my mind that it is a Sebacina. (Cfr. Note 116, Letter 48.) Mr. Leeper sends a fine photograph of the plant which will shortly be published with a detailed history of the plant.

Hydnum adustum.—Stereum complicatum.—Polystictus pubescens. (See Note 361.)—Lenzites saepiaria.—Polyporus intybaceus?—Polyporus radicatus.—Polyporus amorphus.—Polyporus caesius.—Polyporus croceus.—Fomes applanatus.—Tremellodendron pallidum.—Thelephora anthrocephala.—Xylaria polymorpha.—Xylaria Cornu Damae.—Peziza alutaceus.—Peziza macroporus.—Helvella sulcata.—Polystictus cinnamomeus.—Polystictus versicolor.—Hydnum pulcherrimum.—Polyporus trabeus. (See Note 362.)—Polyporus radicatus. (See note 319, Letter 59, in error spelled radiatus.)—Polyporus cuticularis.—Polyporus spumeus.—Polyporus Spraguei.—Stereum fasciatum.—Irpex lacteus.

LEWIS, JOHN E. A., Japan. (Collected in Central Japan):

Lentinus strigosus.—Polyporus rufescens.—Daedalea unicolor.—Polystictus sanguineus.—Polyporus lucidus.—Hirneola auricula-Judae.—Paxillus atrotomentosus.—Lenzites subferruginea. (See Note 363.)—Lenzites murina. (See Note 364.)—Daedalea ungulata. (See Note 386.)

LONG, W. H., New Mexico:

Polyporus stipticus.

LORDLEY, E. D., Nova Scotia:

Polyporus alutaceus?

LOWE, F. E., Massachusetts:

Polyporus Schweinitzii.—Polystictus perennis.

LYMAN, G. R., District of Columbia.

Exotic species introduced on bamboo wood from Manila.—Polyporus zonalis.—Xylaria Hypoxylon. Cosmopolitan.

MASTER, P. D., India:

Hexagona tenuis.—Fomes senex.—Polystictus affinis.—Polystictus floccosus.—Polystictus xanthopus.—Hexagona polygramma.—Lenzites flavida.—Trametes flavida.—Auricularia mesenterica.—Hirneola polytricha.

MILLE, REV. LOUIS, Ecuador:

Battarrea phalloidea.—Tylostoma Berkeleyi.—Stereum Galeottii. (See Note 365.)

NOBLE, MRS. M. A., Florida:

Laternea columnata.—Mutinus elegans.—Trametes hydnoides.—Polyporus adustus.—Polyporus Curtisii.—Polyporus gilvus.—Polystictus sanguineus.—Merulius corium.—Scleroderma Cepa.—Paxillus panuoides.—Scleroderma tenerum.

OVERHOLTS, L. O., Pennsylvania:

Hydnum rufescens.—Irpex mollis. (See Note 321, Letter 59.)

OWENS, C. E., Oregon:

Hydnum aurantiacum.

RAMSEY, HERBERT P., District of Columbia.

Lysurus borealis. (See Note 366.)—Also fine photographs showing the plant in its natural position.

RICK, REV. J., Brazil:

Polystictus arenicolor.—Stereum elegans.—Stereum aurantium.—Lentinus villosus.—Xylaria anisopleura.—Xylaria pyramidata.—Xylaria multiplex.—Xylaria corniformis.—Xylaria apiculata.—Xylaria gracillima.—Xylaria polymorpha.—Stereum (Hym.) reniforme.—Polyporus neofulvus. (See Note 367.)

RIDDLE, L. W., Massachusetts:

Stereum spadiceum.—Stereum sericeum?—Hydnum aurantiacum. (See Note 325, Letter 59.)—Polyporus Curtisii.—Tremellodendron pallidum.—Polyporus adustus.—Stereum (Hym.) tabacinum.—Polystictus pergamenus.

SAXTON, W. T., India. (Collected N. W. Himalaya, 6,500 feet):

Fomes pseudosenex.—Trametes lactinea.—Polystictus inquinatus.—Stereum hirsutum.—Polystictus versicolor.—Polystictus polyzonus.

SCHRENK, HERMANN VON, Missouri:

Xylaria Hypoxylon.

STERLING, E. B., New Jersey:

Polyporus hispidus. (See Note 368.)—Polyporus giganteus. (See Note 369.)—Daedalea confragosa.—Tremellodendron pallidum.—Arachnion albidum?—Boletinus porosus.—Hydnum septentrionale.—Polyporus Spraguei.—Polyporus incrustans.—Trametes suaveolens.—Polyporus Spraguei.—Volvaria bombycina.—Polyporus rutilans.—Polyporus adustus.—Lycogala Epidendrum.—Irpex pachyodon.—Crucibulum vulgare.—Polystictus perennis.—Lentinus strigosus.—Polystictus hirsutulus.

STEVENSON, WM. C., JR., Pennsylvania.

Fomes applanatus.—Fomes leucophaeus.—Polyporus borealis. (See Note 370.)—Polyporus cuticularis.—Thelephora albido-brunnea.—Stereum complicatum.—Thelephora cuticularis.—Tremellodendron pallidum.—Tremellodendron merismatoides.—Tremellodendron Cladonia.

STOCKER, S. M., Minnesota:

Phlebia radiata.—Hydnum ochraceum.—Tremella lutescens.—Polyporus brumalis.—Polyporus circinnatus.—Polystictus pubescens.—Polyporus albellus.—Favolus europaeus.—Schizophyllum commune.—Polyporus trabeus.—Fomes pomaceus.

STOWARD, DR. F., West Australia:
Stereum hirsutum.—Polystictus cinnabarinus.—Polyporus scruposus.

SWANTON, E. W., England:
Cordyceps Robertsii. As fine a collection as I have ever seen. They were collected in the vicinity of Napier, New Zealand.

TAYLOR, MORRIS, New York:
Polyporus aurantiacus.—Polyporus gilvus.—Polyporus radicatus.—Stereum tabacinum.—Lenzites betulina.—Polystictus pergamenus.—Polyporus Spraguei.—Irpex pachyodon.—Stereum fasciatum.—Polyporus elegans.—Polyporus albellus.—Fomes annosus.

TORREND, REV. C., Brazil:
Fomes (Ganodermus) applanatus. (See Note 371.)
I have a large collection from Rev. Torrend that I have not found time to study. They will be acknowledged in detail in the next letter.

TUCKER, SUSAN, Washington:
Crucibulum vulgare.—Cyathus vernicosus.

WEIR, JAMES R., Idaho:
Thelephora Caryophyllea.—Thelephora fimbriata?

WHETSTONE, MRS. M. S., Minnesota:
Cordyceps melolonthae. (Will be published in detail and illustrated in Mycological Notes.)—Peziza floccosa.—Polyporus gilvus.

WOLF, F. A., Alabama:
Polysaccum pisocarpium.—Polystictus sanguineus.
Strobilomyces pallidus. New for the United States. It will be published in detail and illustrated in Mycological Notes.

WOOTEN, E. C., Montana:
Calvatia lilacina.

YASUDA, PROF. A., Japan:
Cordyceps nutans. (See Note 372.)—Paxillus Curtisii.—Polyporus (Ganodermus) valesiacus.—Polyporus versiporus.—Pleurotus ostreatus.—Polyporus Mikadoi.—Hypocrea mesenteria.—Stereum induratum.—Polyporus (or Fomes) Caryophylleus.—Polystictus polyzonus.—Leotia atrovirens. (See Note 373.)—Polyporus sambuceus. (See Note 374.)—Polyporus Guilfoylei.—Polyporus luteus.—Polyporus orientalis. (See Note 375.)—Cordyceps Tricentrus. (See Note 376.)—Pachyma Hoelen.

ZIMM, L. A., New York:
Polyporus cuticularis.—Irpex lacteus.—Polyporus pubescens.—Polyporus brumalis.—Polystictus velutinus.—Polyporus fumosus.—Polystictus hirsutus.—Trametes suaveolens.—Polyporus mollis.—Poria odora.—Polyporus adustus.—Trametes hispida.—Polystictus Greyii.

ZOURNE, S. A., New York:
Polystictus biformis.—Polyporus fuscus.—Daedalea confragosa.—Polystictus hirsutulus.—Daedalea unicolor.—Polystictus pergamenus.—Lenzites saepiaria.—Stereum (Hymenochaete) tabacinum.

NOTE 326.—**Hydnum fragile,** from Miss Lizzie C. Allen, Massachusetts. This we have previously determined as Hydnum reticulatum, an American and inappropriate name. It was referred to the European species by Cooke and on looking up the figures and description we think correctly. It is well named, for the dry flesh is very fragile. It is a pine woods species, and departs from all other known fleshy species in having tuberculer, hyaline spores. (Cfr. Letter 54, Note 234.) I have it from several Eastern correspondents.

NOTE 327.—**Polyporus Amesii,** from F. H. Ames, New York. Additional specimens confirm to our mind the validity of the species (cfr. Apus Polyporus, page 309). We think it a marked deviation of Polyporus fumosus. To the eye from the dark adustus pores, it appears a color form of Polyporus adustus, but the spores indicate its relationship to Polyporus fumosus, as we classified it. It was collected on oak, at Jamaica, Long Island, November 2, 1909.

NOTE 328.—**Polystictus perennis,** from Prof. T. de Aranzadi, Spain. The surface of these specimens has a thin, white "whitewashed" effect not usual to the species, but I am satisfied it is not of specific importance. It is what Quélet calls P. fimbriatus, but not what Fries calls P. pictus, which has a very slender stipe.

NOTE 329.—**Polyporus intybaceus,** from W. H. Ballou, New York. Growing on top of a stump. Whether there is really any difference (excepting habitat) between Polyporus intybaceus growing on wood and Polyporus frondosus growing in ground attached to buried wood, is not sure, notwithstanding the conclusions I reached in Note 276, Letter 58. The spore difference there indicated does not hold good as to this specimen.

Note 330.—**Bovistella? cuprica,** from W. E. Barker, New Zealand. Peridium globose, 1–1½ cm. in diameter, glabrous, bright copper color. Sterile base distinct, but scanty. Capillitium long, intertwined, rigid threads which run out into pointed branches. Spores globose, 4 mic., without pedicel, smooth.

This is characterized by its bright copper color and smooth peridium. If it had an exoperidium when young, all traces have disappeared, from these specimens. It is an ambiguous Bovistella, strongly tending towards Lycoperdon. The capillitium, I am satisfied, is of "separate" threads, viz., the Bovista type, but so long and intertwined that the "separate" threads are difficult to make out. The spores are of the Lycoperdon type.

NOTE 331.—**Polyporus amygdalinus,** from Dr. R. P. Burke, Alabama. This is the first freshly collected specimen that exists now, I believe. The old type at Kew is so poor, little can be told about it. Surface soft, dull, pale yellowish, or brownish now, with darker, innate fibrils. Context soft, spongy, punky, light, pale yellow (salmon buff). Pores and pore tissue white. Mouths small, round or irregular, white. Spores not found, except small, globose, conidial spores.

This species was not included in our Polyporus Synopsis, as little could be told from the old, effete type at Kew. I would enter it in Section 87. The contrast of the white pore tissue and yellow flesh is a feature unknown to me in other species. Ravenel states it has an odor of bitter almonds when fresh, hence the name.

NOTE 332.—**Irpex concrescens,** from Dr. R. P. Burke, Alabama. I have received this from several correspondents and it has not been published as far as I know. Resupinate. Subiculum thick, white, closely adnate. Teeth white, flattened, 8–12 mic. long, growing together and often forming nodules. Cystidia, none. Spores 3 x 5, opaque, hyaline. The entire plant remains white in drying. This appears not to be rare and, I think, has been generally referred to Irpex obliquus. I have also specimens from E. Bartholomew, La. (5471), on Cottonwood, J. Dearness from Prof. Macoun (320), on fir stump.

NOTE 333.—**Fomes Meliae,** from Dr. R. P. Burke, Alabama. This is the first specimen I have received. The types at New York are old and unsatisfactory (cfr. Syn. Fomes, page 283), and recent determinations at New York are Fomes connatus.

Fomes Meliae and Fomes connatus are quite close in general appearance and both have pale context, and pore layers separated by layers of context, a character not known in any other species with pale context. In connatus the pores are ochraceous, darker than the context, spores globose, and hymenium with capitate cystidia. In Meliae the pores are grayish, same color as context, spores elliptical, 3 x 6, and no cystidia. I am glad it proves a good species, as Underwood did a lot of guessing in this line, and he is entitled to stumble over a few that are good. Dr. Burke finds it growing on Melia Azedarach. It is no doubt a species imported from China.

NOTE 334.—**Fomes fraxineus,** from Dr. R. P. Burke, Alabama. A rare plant with us, and this specimen is more like the European in texture than those I have previously seen. Spores are globose, 6–7 mic.

NOTE 335.—**Polyporus ovinus,** sent by J. F. Conant, Massachusetts. This is correct, I am satisfied, on comparison with my European material. There is a faint reddish cast to the dried specimens, but nothing like as pronounced as it is in Polyporus confluens. These two species are close to each other and have been much confused. I have always claimed that ovinus could be told by having no reddish cast. I will have to withdraw that now. Still it is not the pronounced red of confluens, particularly in very old specimens. Cfr. Note 196.

NOTE 336.—**Exidia purpureo-cinerea,** from Miss A. V. Duthie, South Africa. We determine this from the description and the fact that it was named from South Africa. The short diagnosis does not tell much, but it is probably correct. We noted at once that it was not a European species, differing in its mode of growth, its paler color, and the dense, minute papillae from Exidia glandulosa, its nearest relative in Europe. It is a true Exidia with globose, cruciate, pale colored basidia, 10 mic. in diameter, and typical papillae. The spores also are typical of the genus, 6 x 16, reniform, subhyaline, with granular contents. To our eye there is

nothing purple about it. The types at Berlin are very poor, and we think these are the only good specimens in any museum.

NOTE 337.—**Exidia caespitosa,** from Miss A. V. Duthie, South Africa. Truncate, densely caespitose, so that it appears cerebriform. Color pale amber brown. Imbedded near the surface are slender, broken, deep colored ducts (gloeocystidia). Basidia not found. Spores not seen. This species has same color and papillae as the Exidia purpureo-cinerea, differing in shape and structure. The form is like that of Exidia truncata of Europe, but its caespitose manner of growth, much paler color, and smaller size, all distinguish it.

NOTE 338.—**Xerotus fuliginosus,** from Miss A. V. Duthie, South Africa. The genus Xerotus, in the sense it has acquired by use, is simply a Panus with colored, distant gills. It occurs in warm countries only. As to the species, I have never studied them in detail in the museums, but my impression in looking through the cover is that they are largely the same. We have in our collection, we believe, three different species.

Xerotus nigritus. This, we believe, is the most common species and widely distributed. When young it is reddish brown (tawny of Ridgway), but becomes dark, almost black, when old. Several of our collections show both conditions, and intermediate stages. The spores are 8 x 14, hyaline, apiculate with granular contents. The coloring matter is readily dissolved in potash, and the resulting solution is a dark green color. This species we have from the Philippines, E. D. Merrill and several collections from our Southern States. Our American plant was called Xerotus lateritius in its young (tawny) state, and Xerotus viticola when old and black. (Cfr. also Note 165, Letter 53.)

Xerotus fuliginosus. This, the same size, shape and color as young nigritus, does not become dark when old. The spores 6 x 8, hyaline, also quite different. I have determined it from description only. I presume Xerotus fragilis is same thing. These specimens from Miss A. V. Duthie, South Africa, are all I have.

Xerotus Archeri. This, the same color as preceding, is spathulate, with short, thick stipe. The basidia are colored and form a palisade layer, and I find no spore. There are greenish granules seen, which Kalchbrenner evidently took for spores and based on them the genus Anthracophyllum (sic). I have one collection only from Dr. Stoward, West Australia.

NOTE 339.—**Stereum laxum,** from Miss A. V. Duthie, South Africa. Resupinate, loosely woven, but forming a soft membrane. Context brown. Hymenium white. The entire tissue, hymenial and subhymenial, is formed of loosely woven hyphae, the latter colored, the former similar but hyaline. The hyphae are 3-3½ mm. thick, and the hymenial bears small granular thickenings. Basidia clavate, not forming a layer. Cystidia none. Spores 3½-4 x 5, hyaline, smooth.

It grew resupinate on a dead leaf. The loosely woven hymenium indicates the genus Hypochnus, but as the plant is a soft membrane I think it better in Stereum.

NOTE 340.—**Hirneola auricula-Judae.** In a lot of typical Hirneola auricula-Judae, the luxuriant, tropical form received from Dr. Joas Dutra, Brazil, is a specimen with the hymenium so strongly reticulate-porose that it could well be taken for Hirneola delicata. I presume this is the Brazilian plant over which Bresadola and Moeller had such a bitter controversy. I think they were both right and both wrong. The Brazilian plant I take to be a form of Hirneola auricula-Judae, not Hirneola delicata, as both Bresadola and Moeller refer it, and I think Moeller was right in saying it is a form of Hirneola auricula-Judae and wrong in referring it to Hirneola delicata, although from a single specimen like this it is very hard to point out why it is not Hirneola delicata. In Samoa, however, where I found Hirneola delicata frequently, it did not even suggest to me Hirneola auricula-Judae, and there were no connecting forms. "Species" in nature are only relative and subject to local conditions. In Brazil one has good grounds to consider Hirneola delicata and auricula-Judae the same. In the East they are such different plants that one could not possibly class them together.

NOTE 341.—**Stereum Kalchbrenneri,** from I. B Pole Evans, South Africa. Named amoenum by Kalchbrenner, from South Africa, and changed by Saccardo on account of duplication of name. These specimens agree exactly with cotype at Kew. It is very close, and I think a form of Stereum hirsutum, being more luxuriant with more scabrous, brighter colored upper surface, but the hymenium is just the same. It is evident to me that in the original description Kalchbrenner confused this plant with Stereum involutum, as he described the hymenium, as "lilaceo vel alutaceo." There is no lilac shade ever to any species of the hirsutum group, always yellow or cinereous. These specimens from Mr. Evans agree with the cotypes of Stereum Kalchbrenneri at Kew from MacOwan, South Africa, and I take the species in this sense. I have seen several specimens of Stereum involutum (which has lilaceous hymenium) in the museums, determined as Stereum Kalchbrenneri, but it is an error, at least as far as the cotypes at Kew are in evidence.

NOTE 342.—**Daedalea Eatoni,** from I. B. Pole Evans, South Africa. A thin plant, but with same context, color and pores, there is no doubt it is a thin (probably the first year's) growth of Daedalea Dregeana. From one of the specimens of Daedalea Dregeana, I pulled off a thin (supplementary growth) pileus that can not be told from Daedalea Eatoni.

NOTE 343.—**Daedalea Dregeana,** from I. B. Pole Evans, South Africa. A thick, rigid Trametes-like plant with hard, aniline yellow context and rigid daedaloid pores. The type is at Paris. It is a Fomes-Daedalea, the old pore layers indistinct, being filled up with the context tissue. It has no cystidia, and spores I do not find. This is the first time I have received the type (thick) form, though the thin form (cfr. Daedalea Eatoni) I have previously gotten.

NOTE 344.—**Polyporus subradiatus,** from I. B. Pole Evans, South Africa. (Cfr. Apus Polyporus, page 346.) This was named from Japan, but evidently same species. Had it been named from this collection, it would have been called sublicnoides, for to the eye it is exactly same as Polyporus licnoides, but differs entirely in microscopic details. I do not find spores in this collection, but note on the hymenium a few hyaline, sharp, thin walled, smooth, projecting hyphae (cystidia?).

NOTE 345.—**Polyporus (Ganodermus) mollicarnosus,** from I. B. Pole Evans, South Africa. Pileus sessile, a foot or more in diameter. Surface not laccate, pale buff color, smooth, soft to touch. Context very soft and spongy, light color, varying from buff to isabelline. Pores small, round, an inch or more long, with concolorous mouths. Spores 8 x 12–14, very pale color, smooth.

This plant impresses me as exceptional among the Ganodermus section in its very soft flesh and pale spores. I know no other with such flesh excepting Polyporus colossus, which has a differently colored context, and larger spores. I would class it in Section 102 of my recent Apus Polyporus pamphlet. It is an evident annual and probably of rapid growth. Type No. 58 from I. B. Pole Evans, South Africa.

NOTE 346.—**Stereum illudens,** from Miss Margaret L. Flockton, Australia. Miss Wakefield states that Stereum spiniferum (Note 155, Letter 51) was based on young specimens of this species, and I think she is right. It is a frequent species in Australia. Not known elsewhere.

NOTE 347.—**Polyporus arcularius,** from Miss Margaret L. Flockton, Australia. The Australian plant is darker in color and not so scaly as our American plant, but surely same species.

NOTE 348.—**Polyporus decipiens,** from Miss Margaret L. Flockton, Australia. (Cfr. Apus Polyporus, page 355, figure 390.) Recently this has been listed as Trametes. Properly it should be called Phaeotrametes, as Prof. McGinty proposed. It must be admitted that it is a better Trametes than it is Polyporus or "Hexagona," and it is not very good as either one. It is not rare in Australasia, but unknown elsewhere.

NOTE 349.—**Polyporus Hartmanni,** from Miss Margaret L. Flockton, Australia. A fine specimen. This species is closely allied to Polyporus radicatus of the United States. It is only known from Australia and Miss Flockton is the only one of my correspondents who sends it. In fact, the only specimens known to me are those in my museum from Miss Flockton and two old collections at Kew. The color of the dried plant is a rich orange brown, about chestnut of Ridgway. Cooke's figure badly shows it.

NOTE 350.—**Stereum Leichardtianum,** from Miss Margaret L. Flockton, Australia. The determination is not sure, though probably in same sense as Miss Wakefield has recently used the name. The type at Paris is a single specimen (from Australia), and if this plant, it is a young specimen of it. These are old specimens and show glabrous and pubescent zones. The type has no glabrous zones, but that may be a detail of age. In this sense the plant is quite close to Stereum lobatum. Spores teste Miss Wakefield 3–3½ x 7–9. Owing to the vague character of most of Léveillé's naming, there is no certainty that this is correctly named, but the name is as good, or rather as bad, as any for it, and the plant needs a name.

NOTE 351.—**Polystictus oblectans,** from Miss Margaret L. Flockton, Australia. As stated in my Stipitate Polyporoids, page 164, this is at best a form of Polystictus cinnamomeus of Europe and United States. I have now six collections from Australia and from them can get a good idea of it. It has the same bright color and only differs in more pronounced, coarser fibrils (sometimes erect) on the pileus. I have also a collection of Polystictus cinnamomeus from Australia, exactly the same as our American plant.

NOTE 352.—**Lycoperdon piriforme var. flavum,** from Miss Margaret L. Flockton, Australia. Remarkable for the bright yellow color of the young gleba, and it has a smoother context than the European plant. I think it is really a species, but too close to piriforme.

NOTE 353.—**Hexagona similis,** from Miss Margaret L. Flockton, Australia. A fine collection of this Australian species, the first I have gotten. It is quite close to Hexagona rigida, but smaller pores. Both species are close to Hexagona tenuis, but thicker plants with fibrillose surface. This is the best collection of the species I ever saw.

NOTE 354.—**Bovista plumbea var. nigrescens,** from J. M. Grant, Washington. This is for me a dark form of Bovista plumbea, though it might be held to be Bovista nigrescens of Europe, a small form. I think the former is the correct view, for Bovista nigrescens with same spores, etc., as plumbea in Europe corresponds to Bovista pila with us, in grosser characters. Bovista nigrescens type of Europe has never been found in the United States, although I have it from Mexico.

NOTE 355.—**Fomes scutellatus,** from D. B. Griffin, Vermont. Every time I get this little species, and it seems fairly common on alder branches in the Eastern States, I hunt for the spores, but I never found them until this specimen. Here they are abundant. They are straight, cylindrical, hyaline, about 3½ x 10–12 mic.

I referred (with doubt), Letter 59, Note 297, an Australian collection to our American species. As it develops that the Australian plant, though similar to the eye, has entirely different spores, we are forced to give it a new name, as follows:

NOTE 356.—**Fomes Clelandii.** Pileus sessile, small, 1–2 cm. in diameter. Surface black, rugulose, dull. Context isabelline. Pores minute with white mouths. Cystidia none. Spores elliptical, 6–7 x 7–8½, subhyaline, opaque, smooth. When this was received it was referred

with doubt (cfr. Note 297, Letter 59) to Fomes scutellatus, an American species, with which it exactly accords to the eye. We have since found that the spores of Fomes scutellatus are entirely different, hence must rename the Australian plant. It goes in Section 57 of our Fomes Synopsis. Type (No. 52) from Dr. J. B. Cleland, Australia.

NOTE 357.—**Trametes heteromorpha,** from Mrs. A. M. Hadley, Vermont. Named by Fries as Lenzites, but takes Trametes forms also in Europe. The identity of our American plant with the European is not fully established, but I believe it to be the same.

NOTE 358.—**Polystictus planus,** from Mrs. A. M. Hadley, Vermont. This is a rare plant and this is the best specimen I have ever gotten. It was named as above by Peck. It occurs in Europe, but is very rare. My collections from Europe are all very scanty. Bresadola, who tried to substitute the name Trametes stereoides for Trametes mollis of Fries, or, as I call it, Daedalea cervina of Persoon, considered this a small-pored variety which he named var. Kmetii. I do not consider it a variety of Daedalea mollis. Romell takes it as the true Polyporus stereoides of Fries, basing his opinion on a specimen in Fries' herbarium, so labeled by his son Robert Fries, although there is a specimen of Daedalea cervina labeled by Fries himself in the herbarium as Polyporus stereoides. Fries describes the pores as "majusculus," so shows them in his Icones and states the plant grows on Abies and has white pores. The pores are always minute, cinereous, and it does not agree with Fries' Icones and is never known to grow on Abies. I therefore cannot agree with my friend Romell. I think Polyporus stereoides of Fries is only a synonym for Daedalea mollis and has nothing to do with this plant, even as a form. Fries, in my opinion, called the pileate form of Daedalea cervina as Polyporus stereoides, and the resupinate form Trametes mollis. Polystictus planus has the coloration of Daedalea cervina, but otherwise with its minute pores is entirely different. The spores are 4x10, cylindrical, straight.

NOTE 359.—**Sistotrema confluens,** from C. C. Hanmer, Maine. I collected the plant once in Sweden, but these are the third specimens I have from this country. It is rare. It is an ambiguous plant as to classification between Hydnaceae and Polyporaceae, but should be included in the latter in my opinion. Bulliard called it Hydnum and Persoon and Fries both included it in Hydnaceous plants. The plant has pores which are sinuate, daedaloid, with walls prolonged into teeth-like projections. When fresh as you look directly at the face of the hymenium, the walls of the pores are continuous and there is no question about it having pores. It is only a side view that gives it an Irpex appearance.

The old genus Sistotrema of Persoon, which was based on sinuate pores prolonged into teeth, would not have been a bad genus, but the Friesian treatment of restricting it (mainly) to this one species and splitting off the genus Irpex is not so good. Banker's recent proposal to include it with species having definite, awl-shaped teeth is about as absurd a proposition as any one could make who knew anything about the classification.

NOTE 360.—**Hydnum Peckii,** from Miss A. Hibbard, Massachusetts. I name this only from the description and, of course, it is doubtful. It is a rare plant, and this is the first time I have received it. It belongs to the section with hard, subwoody context, but the pale color distinguishes it from all others known to me in this section. Spores are irregular, light colored, tubercular.

NOTE 361.—**Polystictus pubescens,** from Burtt Leeper, Ohio. Fine, typical *thick* specimens. Polystictus pubescens and Polystictus velutinus are the same species. If it is thick, it is Polystictus pubescens; if it is thin it is Polystictus velutinus. Dried specimens are always yellowish, but when fresh, as I have collected them in Sweden, they are white, acquiring a yellowish tinge in drying. Polystictus Greyii is also close, but differs in more glabrous pileus. We do not know it in Europe, but with us it is abundant on beech late in the fall, and white when growing, turning yellowish in drying. It is thin and has been called a smooth form of P. velutinus, but for me it is a good species.

NOTE 362.—**Polyporus trabeus.** Recently on a trip to the mountains of West Virginia we found Polyporus trabeus a number of times, and have also received a fresh specimen from Burtt Leeper, Salem, Ohio. When fresh and wet it is grey with zonate, grey flesh. When dry, pure white in all parts. The surface is minutely pubescent and the flesh soft and spongy. The word "crumbly" in our previous description refers to the dried flesh. When fresh it is just the opposite from "crumbly."

NOTE 363.—**Lenzites subferruginea,** from John E. A. Lewis, Japan. This is frequent in Japan and replaces Lenzites saepiaria and has the same bright context. I have over twenty collections of it, mostly from Japan. There are bright forms and pale forms. The latter are the most common. The bright forms are same color as Lenzites saepiaria, but are smooth instead of hirsute. The gills are more distant. I have sorted the specimens into four lots, but I do not pretend to say that they are species.

No. 1, The usual form in Japan with bright context but pale or dull surface.
No. 2, Bright smooth surface and context. Thick form with broad gills.
No. 3, Bright smooth surface and context. Thin form with narrow gills.
No. 4, Bright form with pubescent surface. It cannot be told from Lenzites saepiaria and I have so labeled the two collections I have from Japan.

Forms 2, 3 and 4 are perhaps nearer Lenzites saepiaria than Lenzites subferruginea.

NOTE 364.—**Lenzites murina,** from John E. A. Lewis, Japan. These are the first I have received of this species, which for me is a good species (cfr. Letter 36, page 3). It has been referred (in error, I think) as a variety of Lenzites betulina.

NOTE 365.—**Stereum Galeottii,** from Rev. Louis Mille, Ecuador. This is only the smoothish form of the common Stereum lobatum of the tropics. These plants are almost glabrous. I have

one collection from Madagascar with smooth and pubescent specimens in same collection, hence the species based on the smooth pileus is hard to maintain. It is rare, however, for on going through my lot of Stereum lobatum I find only one other smooth collection, which was from Brazil.

NOTE 366.—**Lysurus borealis,** from Herbert P. Ramsey, District of Columbia. Found in quantities on the Arlington Experiment Farm near Washington, D. C. Formerly this was supposed to be a very rare species, but it has now become established in many localities, mostly Eastern. Cleveland and Cincinnati are the furthest west it has yet been found.

NOTE 367.—**Polyporus neofulvus,** sent by Rev. J. Rick, Brazil. Surface context and pores concolorous, pale yellowish (chamois). Pileus dimidiate, 4 x 8 x 1+ cm. Surface glabrous, dull with slightly uneven zones. Context firm, somewhat soft. Pores minute, round, 2–3 mm. long. Cyst. none. Spores abundant, irregular subglobose, 4–5 mic., hyaline, smooth. This plant is close to Polyporous subfulvus as to pores, surface, color and general appearance. The context, however, is concolorous with pore tissue, and in subfulvus the context (almost white) is much paler than surface and pore tissue. Besides the context is more punky, thicker, and the plant is broadly attached, and not disposed to be petaloid. I received it from Rev. Rick before and sent it to Europe, where it was determined as Polyporous nivosus. I satisfied myself at Kew it could not be nivosus (cfr. note top of page 311, Polyp. Synopsis). Types from Rev. Rick (two collections).

NOTE 368.—**Polyporous hispidus,** from E. B. Sterling, New Jersey. A fine, large specimen, received fresh. It consisted of several imbricate pilei and measured 7x11 inches. The surface hairs were orange brown, about amber brown of Ridgway. None of the figures in European works show the color of the plant well. Bulliard, t. 493, fig. B., is about as close as any and shows the nature of the hairs better than Boudier's figure. Also color is closer but a little too red. Bulliard, t. 210, is not hirsute enough. Sowerby, t. 345, is too yellow, and Greville, t. 14, much too red. Gillet is much too pale and yellow. The color of the pore mouths is a peculiar, dirty yellow, about olive lake of Ridgway.

Polyporus hispidus is by no means a common plant in the United States. Mr. Sterling finds it on oak in New Jersey, but not many of my correspondents send it in.

NOTE 369.—**Polyporus giganteus,** from E. B. Sterling, New Jersey. A very large specimen, measuring when fresh 20 inches in diameter. Notwithstanding its name, Polyporus giganteus rarely gets as large as this. Mr. Sterling has an extended article in the Trenton Times-Advertiser, September 19, 1915, on the plant. He states that "when young and tender it is edible." I doubt if Polyporus giganteus is often young and "tender" enough to be of very much value as a food plant.

NOTE 370.—**Polyporus borealis,** from Wm. C. Stevenson, Jr., Pennsylvania. The form growing upright. In going over our specimens we note an error in our account of the plant in our recent pamphlet. It should be described as "usually growing upright" and reduced at the base, rarely dimidiate, and the flesh spongy when fresh, but drying light weight, but hard and tough.

NOTE 371.—**Fomes (Ganodermus) applanatus,** from Rev. C. Torrend, Brazil. A large specimen with a thick, distinct stipe. It is usually sessile in the temperate regions.

NOTE 372.—**Cordyceps nutans,** from A. Yasuda, Japan Collected in Province Chikugo, Japan. The upper portion is orange, while the greater part of the stalk is black. It grows on several species of "Randwanzen."

I hope my Japanese correspondents will keep a special outlook this season for Cordyceps. I am much interested in them.

NOTE 373.—**Leotia atrovirens,** from A. Yasuda, Japan. We referred this plant, when received, to Leotia chlorocephala, in sense of Durand, but on going into the subject again, we doubt if the slight, paraphyse difference between the Japanese specimens and the European is enough on which to maintain a species. In addition, it is illogical to apply the name chlorocephala to a plant with both head and stem green, notwithstanding the evidence of Schweinitz' herbarium, which is not always conclusive, as in the case of Mitremyces lutescens (Cfr. Myc. Notes, 30, p. 395). We think we shall take the name chlorocephala for the only plant to which it logically belongs, believing that either Schweinitz or the party who mounted his herbarium has gotten the specimens mixed.

NOTE 374.—**Polyporus sambuceus,** from A. Yasuda, Japan. Sessile, applanate, 7–13 x 10–22 cm. When fresh, juicy and heavy, but when dry it becomes very light, spongy, pithy. Surface with thin, smooth, light brown, separable crust. Context soft, spongy, cottony, white. Pores white or discolored, small, rough, with thin walls, which often split, the pores becoming irregular. Spores globose, 3–4 mic., hyaline, smooth.

When dry this is a very light, fragile species and closely allied to Polyporus Eucalyptorum in Section 80. In some of the specimens the thin crust has mostly peeled and only fragments remain, in other specimens the crust is indistinct. Prof. Yasuda wrote me it grew on old stumps and is widely distributed in Japan. Two of his collections, Nos. 3 and 311, are typical as described. Two others, Nos. 101 and 235, are probably younger conditions of it. The pores are shorter and regular, the context, while soft and spongy, is not so light and fragile. The surface has no distinct crust. The name adopted is to associate the pithlike context with elder pith.

NOTE 375.—**Polyporus orientalis,** from Prof. A. Yasuda, Japan. Cfr. Stipitate Polyporoids, page 193. This specimen is mesopodial, same as the type specimen figured (No. 499). Prof. Yasuda sent some time ago (No. 243) a pleuropodial specimen which I did not recognize

at the time. While we placed it in section Pelleporus, it really belongs in a section by itself which might be called the "stipitate gilvus section." The soft, pubescent pileus and hard texture are prominent features of the plant. It was sent as Fomes, but we believe it a Polyporus. There is no indication of any perennial nature in either of the three collections that we have.

NOTE 376.—**Cordyceps Tricentrus,** from Prof. A. Yasuda, Japan. Stipe slender, 1 mm. by 6 cm. Head nodding, smooth, $1\frac{1}{2}$ mm. by 7 mm. Entire plant pale yellow. Perithecia not prominent. This species grows on Tricentrus and is very similar to Cordyceps nutans (also from Japan, cfr. Letter 56, Note 250, and Fig. 709). It differs in its host, Tricentrus, a name we have not located in any entomological work in our library, and in its color pale yellow in all its parts. Cordyceps nutans has a black stem below and deep orange above, as is the club. We have specimens of Cordyceps nutans from J. Umemura, but our material of both species is so scanty we do not wish to cut it to examine the spores. We are indebted to Prof. A. Yasuda for the specimen, also for the name of the host. We will shortly present a photograph of the plant.

There is another Cordyceps that has about the same stature and color, viz., Cordyceps sphaecocephala, which grows on wasps in the West Indies and rarely in Europe. This differs by its prominent ostioles, and I think there is no record of it in the East.

NOTE 377.—**Polyporus frondosus.** Mr. Leeper finds that this species, unlike the closely related Polyporus umbellatus and Polyporus Berkeleyi, does not form a true sclerotium, but a mycelial mass binding the earth together. I believe P. frondosus is always attached to buried roots, as I suspect all three species are. The "sclerotium" of Polyporus frondosus is of the nature of that of Polyporus tuberaster (cfr. Section Ovinus, page 74), excepting that it is not so strongly developed. The ball of earth is scarcely bound together firmly enough so that any one would class it as a "sclerotium." Our best thanks are extended to Mr. Leeper for light on this subject, and for a beautiful photograph illustrating it.

NOTE 378.—**The Sclerotium of Termite Nests.** I have on two occasions received from Rev. J. Gillet, Congo, Belge, Africa, specimens of a sclerotium found on termite nests in Africa. As, of course, the sclerotia give me no clue to their identity, I forwarded them to Prof. T. Petch, Peradeniya, Ceylon, who has made a special study of fungi on termite nests, and he has informed me as follows:

"They are Sclerotium stipitatum Berk. & Curr., known to occur in termite nests in India, Ceylon, and Madagascar. They are the sclerotia of a Xylaria whose earliest name is, I believe, Xylaria nigripes, Klotzsch, 1833. I know it as Xylaria escharoidea (Berk.), 1843, as I have seen the type of that. I have not seen the type of nigripes. Its latest (?) name is Xylaria termitophilum Jumelle and Perrier de la Bathie, and it has numerous others between. I hope to publish shortly a résumé of the work which has been done on Termite fungi."

NOTE 379.—**Polystictum caperatus.** This was named from Africa, but is more common in the American tropics. The African plant is not as strongly zoned and the surface is soft, pubescent and more even than the American form. The context color is also darker. I do not question but that the American form, which was always referred to P. caperatus by Berkeley, is what Fries called Polystictus comatus, but which is not surely known, as no type exists.

At Kew I referred a plant from J. Umemura, Japan (Nos. 80 and 83) to P. caperatus, but on comparison with my specimens at home find some marked differences. The surface is as in the African form, but more strongly zoned. The context, however, is much paler than the African form and even paler than the American form. The Japanese plant is a distinct form, if not a distinct species.

NOTE 380.—**Polyporus radicatus.** Our reference to Note 319, Letter 59, should be Polyporus radicatus, not Polyporus radiatus. What a vast difference a single letter makes. Of course, speaking of the sclerotium in connection with Polyporus radiatus shows the error on its face. In spite of all precautions, typographical errors will creep in.

NOTE 381.—**Stereum pallidum in the United States.** Recently at Eglon, West Virginia, I found this species growing in clay banks. I have never gotten it from a correspondent, and think it is not recorded from our country. A detailed account of the plant was given in our Stipitate Stereum pamphlet. The following description, drawn from the fresh plant, differs in some regards from my previous description drawn from dried specimens.

Fleshy-cartilaginous, more fleshy than Stereums usually. Color dirty white, or pale clay color. Caespitose, imbricate, growing on bare, clay bank somewhat in the manner of Thelephora vialis. Pileoli 1–$1\frac{1}{2}$ inch in size, narrow at base, but not stipitate. Upper surface fibrillose. Hymenium concolorous, in folds. Cystidia none. Spores ovate, 5 x 7, transparent, with a large, opaque gutta. A section shows the tissue of rather loose, hyaline hyphae. On comparison with European material I conclude that this is same species.

NOTE 382.—**The color of the pore mouths of Fomes applanatus.** We have been very much puzzled, as stated in our Fomes pamphlet, over the varying colors of the pore mouths of the Fomes-applanatus group and in a letter recently received from T. Petch he stated the yellow coloring is developed in drying and that they are all white when fresh. We cannot say as to that, but we have never noted yellow pore mouths excepting in dried specimens. Still, if this is the case, it is a curious fact that in certain sections of the country, for instance, California, the most of the dried specimens received have yellow pore mouths, while in our Eastern States they almost invariably dry white. Also in Europe there is but one species where we have found yellow pore mouths on dried specimens, namely, Fomes laccatus, and that has always yellow pore mouths.

NOTE 383.—**Fomes badius.** I sometimes think I must be a very poor collector. The average collector can go off a few hundred miles and come home with a bagful of what he calls "new species." I spent three weeks last March in Cuba and I never saw but one polypore

during the trip that I could not name at sight. I did find one Fomes that had the largest pores I ever saw in a Fomes, but when I got home and compared it I concluded it was only a large-pored form of Fomes badius. I found but a single specimen. Fomes badius (cfr. Fomes Synopsis, page 249) is for me only a large-pored form of Fomes rimosus, but the largest pores I had previously seen, a specimen from D. Griffiths, Texas, measured 300 mic., which is double the normal size.

The specimen I found in Cuba has pores again double from 500 to 600 mic., and to the eye seems different, but with the same characters, otherwise it would be folly to propose a species on it, for specimens of Fomes badius, I have previously noted, vary as to pore sizes. In fact, to my mind a tendency to vary in some feature, like the pore sizes of this species, the hymenium configuration of Lenzites flavida, is *the character* of the species. There is some variation in all species, no doubt, but some are *characterized* by a tendency to vary in a certain line. To propose as "new species" each specimen showing a slight difference is the merest nonsense, but a large part of the so-called "new species" that encumber Saccardo are based on just such vague basis.

NOTE 384.—As soon as you read this note, sit down and drop a postal card to the United States Department of Agriculture, Washington, D. C., and ask them to send you a copy of Bulletin No. 175, entitled "Mushrooms and Other Common Fungi," by Flora W. Patterson. It is the best general introductory work that has ever come to our notice. It embraces the common species and is illustrated with fine photo-engravings by which they can be identified. No one who is interested in the study can afford to be without a copy of the bulletin, and it can be had for the asking.

NOTE 385.—**Fomes annosus and Trametes Persoonii.** I have been handling these two species in quantities for a long while, and never suspected that there were any very close resemblances between them. Recently I received from Rev. C. Torrend, Brazil, a specimen that I referred to Fomes annosus (annual form), but noting that in his letter Father Torrend had referred it to Trametes Persoonii, I began making some comparisons that surprised me. While the pileus and context colors are similar, usually there is no confusing the thin, tropical plant with large, usually elongated pores, (T. Persoonii), with the small pored, rigid plant of temperate regions (Fomes annosus). But the specimen in question had medium, round, and regular pores, and on comparison I could hardly tell it from a specimen I have from *New York* of Fomes annosus, with same sized pores. The spores, however, show the difference, elliptical 3½-4x8 in Trametes Persoonii and globose, 3½-4 mic. in Fomes annosus. Since my attention has been drawn to it, I question a determination I made for J. Umemura, Japan, (No. 126) as Fomes annosus. I do not find spores in it and I rather suspect it may be a small pored, regular form of Trametes Persoonii.

NOTE 386.—**Daedalea ungulata.** Pileus sessile, ungulate, 2-3 inches thick, surface pale, minutely and densely pubescent. Context antique brown, varying to raw sienna. Pores sinuate, daedaloid, with thick walls. Hymenial surface pale, alutaceous, contrasting with the context color. Hymenium pubescent with projecting, subhyaline hyphae. Spores not found.

Though smaller, this has same shape and hymenial configuration as Daedalea quercina, but the coloration is like Lenzites saepiaria. I am satisfied it is only an ungulate, daedaloid form of Lenzites saepiaria, but no such form is known elsewhere than in Japan. Of this the color and shape are similar to Daedalea Guyoniana from Algeria, known from one old specimen at Paris (as Trametes). At first I so referred this collection, but I have since noted that Daedalea Guyoniana has colored spores and belongs to Prof. McGinty's "new genus" Phaeodaedalea, hence can not be the plant from Japan.

NOTE 387.—**Stereum australe,** from Geo. E. Morris, Massachusetts. (Cfr. Note 115, Letter 48.) This species which corresponds to Stereum fasciatum (and I think is so called by Burt), with the exception that the hymenium "bleeds," I found in Florida, and was under the impression that it did not occur in the North. We shall have to correct that, now that we have it from New York, but we can not concede that it is Stereum fasciatum, which Schweinitz records "vulgate et maxima Pennsylv."

NOTE 388.—**Xylaria Cornu-Damae,** from Geo. E. Morris, Massachusetts. Usually referred to Xylaria digitata (in error) in American lists, as for instance, Frost's New England list and Kauffman's recent New York list.

NOTE 389.—**Laternea bicolumnata in California.** In a letter received from L. C. C. Krieger, California, he informs me that the specimen of Laternea bicolumnata that was found in California, (Cfr. Letter 59, Note 305) was developed in some earth that contained phaenogamous plants from Japan. It is therefore probable that the specimen was only adventitious. It would be interesting to learn, as the years go by, if this species becomes established in California, as Lysurus borealis has become established in the Eastern States.

NOTE 390.—**Lycoperdon subincarnatum,** from J. B. Cleland, Australia. This is a peculiar species, characterized by the little pits on the peridium like those of a thimble, and its hyaline, septate capillitium. It is rather rare in the United States, and is (excepting the common L. piriforme) the only puff ball we have that habitually grows on logs. (Cfr. Myc. Notes, page 233.) We collected it in Samoa, and we believe that the scanty material representing Lycoperdon purpureum at Kew, from Bonin Island, is the same plant, but the "type" is too poor to consider.

NOTE 391.—**Polyporus Berkeleyi,** from Rose M. Taylor, Michigan. *Growing on fir logs.* The well known Polyporus Berkeleyi of our Eastern States is developed from a sclerotium (Cfr. Letter 49, Note 23), and usually occurs at the base of oak trees. Mr. Weir finds it

common in Idaho, a root parasite of the fir (Abies), and now Miss Taylor sends it from Washington, growing on fir logs.

Ordinarily plants that grow on wood are different from those that grow in the ground, for habitat is usually one of the best characters a species has. But there are exceptions, such as Polyporus Schweinitzii, and as I believe now, Polyporus Berkeleyi. From the interesting note Miss Taylor sends, the plants were large, caespitose, and developed from branching stem which accords with the habits of the epigeous form. "The young specimens have an acrid taste, old specimens very peppery." This is a new observation in connection with Polyporus Berkeleyi, and I do not know that it has ever been noted on the usual, epigeous plant. The context, spores, pores, texture are exactly the same in both forms, and had Miss Taylor's specimen been sent without notes I should have referred it to Polyporus Berkeleyi without knowing that it was anything unusual.

NOTE 392.—**Polyporus spongia,** from Rose M. Taylor, Michigan. This is only a small pored form of Polyporus Schweinitzii, and has been given by me as a synonym. Fries distinguishes it by its small pores, a distinction not borne out by his specimens at Kew. This plant, though, does have small pores and the name under Fries' definition can well be applied to it.

NOTE 393.—**Ptychogaster,** from L. J. K. Brace, Bahamas. Many fungi in addition to the basidial or ascus spores bear spores direct from the hyphae, called conidial spores. Sometimes specimens for some unknown reason have a preponderance of these conidial spores, and certain species as Polyporus rufescens, have a tendency in this direction. There are all gradations, from specimens with the hyphae largely conidial bearing, to specimens mainly composed of these conidial spores. The latter are called Ptychogaster (or Ceriomyces in Saccardo), though it is not a genus, but a sort of monstrosity. Mr. L. J. K. Brace sends a colored spored specimen of a Polyporus with such abundant, conidial spores borne on the hyphal tissue, that it readily crumbles into a powder mainly composed of these spores. I think it is a derivative of Polyporus cuticularis, but I would not so state with any certainty. Several of these monstrosities have been named as species, as Ptychogaster albus (Cfr. Myc. Notes, Polyporoid Issue No. 2, page 31), Ptychogaster cubensis, Ptychogaster fici, etc., but there is enough trouble in getting names for normal species without worrying over the freaks, or encumbering the subject with names for them.

NOTE 394.—**The New York Species of Marasmius,** by L. H. Pennington. When we published our article regarding Professor Peck in Mycological Notes No. 38, we stated that in our opinion the monographs issued by Professor Peck were the most valuable work that had been done in American mycology. We are very glad to see this work continued in the same style by L. H. Pennington, for it will eventually become a handbook, which is badly needed. It has been some time since we have paid any particular attention to agarics, but we believe that Prof. Pennington has published a very critical and accurate account of the species of Marasmius, which will be of great value to those working on the agaric subject.

NOTE 395.—**Clathrus gracilis.** I have received from Chas. C. Brittlebank, Australia, a description of Clathrus gracilis made from the fresh plant as follows: "Color, white. Volva irregular, more or less oblong, from 30 to 50 mm. Receptacle large, varying from 40 to 110 hgh. by 50 to 70 mm. broad. Mesh large, in some cases the openings are from 20 to 25 mm. or larger. Branches tough, white, formed of two or more tubes welded and in sections 3½-4 mm. in width, but often reaching 5-6. In some specimens there is a large area of from 30-40 mm. long and wide composed of large, flattened branches, generally at the apex of the receptacle. Gleba surrounded by mesh when young, but at age clinging to inner side of branches. Spores, olive green in mass 3-4½x1½-2 m. Odor, sour, like French mustard, or vinegar poured on cabbage. Very acid when tested with blue litmus paper. Your figure on page 60, Synopsis of the Known Phalloids, is very good indeed for a spirit specimen. When growing it would be extended as are those on the opposite page. The receptacle is free in the volva when once expanded."

Practical notes, such as Mr. Brittlebank provides, are what are needed regarding foreign phalloids in order to get an accurate knowledge of them. I think more misinformation has been promulgated regarding phalloids than any other one subject of mycology, though all are bad enough. We have from Mr. Brittlebank a set of fine drawings and notes on all the phalloids that occur in his region, and we have been intending for some months to get up a pamphlet to illustrate them and make the information available to others. So much work has accumulated in other departments that we have never gotten to it, but we hope to do so in a few months.

LETTER No. 61.

Acknowledgment of specimens received since last report. My best thanks are extended to those who favored me with specimens. Some of the notes referred to in this letter have been published in the previous letter, No. 60, and some notes that will be illustrated with photographs will be published in future issues of Mycological Notes.

In my printed letter I do not give authorities for names, believing that the binomial should represent a plant name, but in acknowledging the specimens to my correspondents, I give the "authority" in event they desire to use the same. All specimens are acknowledged by personal letter as soon as they come into my hands. Foreign correspondents may send specimens to my English address and they will reach me promptly, although in countries which have direct parcel post arrangements with the United States, it is best to send them by parcel post direct to me. Specimens may be sent to either of the following addresses:

C. G. LLOYD,
224 West Court Street,
Cincinnati, Ohio.

C. G. LLOYD,
95 Cole Park Road,
Twickenham, England.

Cincinnati, Ohio, February, 1916.

ADCOCK, G. H., Australia:
Cordyceps Robertsii.

AMES, FRANK H., New York:

Polystictus cinnamomeus.—Stereum cinerescens.—Fomes conchatus.—Tremellodendron pallidum.—Polyporus adustus.—Stereum (Hymenochaete) rubiginosum.—Leotia chlorocephala.—Fomes ohiensis.—Ptychogaster alveolatus. (Will be illustrated in Mycological Notes.)—Xylaria castorea?—Polyporus distortus. (Will be illustrated in Mycological Notes.)—Polyporus malicolus.—Gyrocephalus rufus.—Geoglossum difforme.—Macropodia pezizoides?—Sebacina incrustans.—Polyporus destructor.—Poria undata.—Polyporus subradicatus. (See Note 396.)—Trametes variiformis.—Polyporus circinnatus. (See Note 397).—Polyporus cristatus.—Polyporus cuticularis.—Trametes malicola.—Polyporus albellus.—Reticularia Lycoperdon.—Tremella mesenterica.—Stereum hirsutum.—Polyporus dichrous.—Merulius Corium.—Polystictus heteromorphus.—Poria ferruginosa.—Stereum frustulosum.—Polyporus epileucus.—Lenzites corrugata.—Fomes pinicola.—Polystictus aurantiacus.—Hypoxylon coccineum.—Poria mutata.—Polyporus rutilans.—Ustulina vulgaris (young, conidial condition).—Polyporus subradicatus.—Stereum tuberculosum.—Polyporus varius.—Thelephora terrestris.—Thelephora multipartita.—Poria salicina.—Polyporus semisupinus.—Poria tulipifera.—Polyporus Spraguei.—Poria versipora.—Polyporus cerifluus?—Stereum ochraceo-flavum.—Trametes heteromorpha.

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

ARCHER, W. A., New Mexico:

Polyporus corruscans. (See Note 398).—Trametes hispida.—Schizophyllum commune.

BATES, J. M., Nebraska:

Geaster limbatus.—Marasmius graminum.

BEARDSLEE, H. C., North Carolina:

Stereum Burtianum. (See Note 399).—Thelephora intybacea.—Boletus rubinellus. (Will be illustrated in Mycological Notes.)—Thelephora griseozonata.—Sparassis crispa. (See Note 400.)

BEWLAY, ANNA K., Pennsylvania:

Pleurotus nidulans.

BIJL, P. VAN DE, South Africa:

Polyporus dichrous.—Fomes glaucoporus?—Polyporus varius.—Fomes rimosus.—Polystictus subpictilis. (Note 413.)—Polystictus luteo-olivaceus.—Polyporus scruposus.—Trametes protea.—Fomes connatus.—Trametes incondita. (Will be illustrated in Mycological Notes.)—Fomes Caryophylli.

BOURDOT, REV. H., France:

A fine lot of specimens, most of them resupinates. If I had had these specimens some years ago, I should have been able to have done something with our American resupinates. We have had trouble with the American plants, because we did not know, and have been unable to obtain any information regarding, the resupinate plants of Europe. A fine set of plants from Rev. Bourdot will help me to work on our American plants.

In this connection, we beg to acknowledge, also from Rev. Bourdot, determinations and sketches of the structure of a large series of the American species. We believe we shall now be able to do something with the American resupinates, if we have time to work on the subject, but the pileate species are coming in so rapidly that there is no prospect for the near future.

The plants are listed as follows, under the names used by the Rev. Bourdot:

Polyporus Podlachius.—Poria mollicula. (Will be illustrated in Mycological Notes.)—Poria mellita. (Will be illustrated in Mycological Notes.)

Acia grisea, stenodon, uda.

Asterostroma bicolor, cervicolor.

Coniphora arida, lurida.

Coniophorella olivacea.

Corticium byssinellum, sphaerosporum, submutabile.

Gloeocystidium insidiosum.

Grandinia Brinkmanni, helvetica, muscicola, mutabilis.

Hymenochaete Mougeotii.

Mucronella aggregata.

Odontia arguta, barba-Jovis, bicolor, Bugellensis, conspera, crustosa, junquillea, papillosa, Queletii, stipata.

Radulum membranaceum, orbiculare, quercinum.

Stereum duriusculum, frustulosum, gausapatum, pini, rugosum, spadiceum.

BRACE, L. J. K., Bahamas:

Polystictus occidentalis.—Schizophyllum commune.—Ptychogaster. (See Note 393, Letter No. 60.)

BUBNA, M., Ohio:

Stereum sericeum.—Polystictus velutinus.—Polystictus versicolor.—Polystictus Grayii?—Irpex lacteus.—Panus stipticus.—Daedalea unicolor.—Polyporus adustus.—Stereum spadiceum.—Polyporus rutilans.—Polyporus brumalis.—Daedalea confragosa.—Polystictus hirsutus.—Polyporus albellus.—Polyporus gilvus.—Polyporus trabeus.—Tremellodendron pallidum.—Thelephora terrestris.—Bulgaria rufa.—Polyporus radicatus.—Stereum fasciatum.—Merulius tremellosus.—Craterellus cornucopioides.—Thelephora anthrocephala.—Favolus Europaeus.—Schizophyllum commune.—Fomes leucophaeus.—Tremellodendron merismatoides.

BURKE, R. P., Alabama:

Lycoperdon piriforme.—Stereum ochraceoflavum.—Polystictus cinnamomeus.—Cyathus striatus.—Lycoperdon Wrightii.—Polysaccum pisocarpium.—Scleroderma Geaster.—Poria ambigua.—Polyporus cfr. alutaceus. (See Note 401.)—Hydnum amicum.—Hydnum scobiculatum.—Lenzites saepiaria.—Mitremyces cinnabarinus. (See Note 402.)—Polyporus submurinus.—Polyporus Curtisii?—Dacryomyces confluens.—Merulius Corium.—Exidia recisa.—Fomes igniarius.—Polystictus versicolor.—Polyporus delectans.—Polystictus versatilis.—Tremella fuciformis. (Will be illustrated in Mycological Notes.)—Polyporus petaliformis.—Hydnangium Ravenelii.—Lenzites repanda.—Polystictus biformis.—Fomes leucophaeus.—Polyporus (Ganodermus) sessilis.—Polystictus biformis.—Trametes hispida.—Poria versipora.—Hydnum ochraceum.—Calvatia rubroflava.—Ptychogaster. (Note 414.).—Tylostoma campestre.—Scleroderma cepa.—Lycoperdon gemmatum.—Hydnum adpressum. (Will be illustrated in Mycological Notes.)

CLELAND, J. B., Australia:

Polyporus Schweinitzii.—Polyporus Hartmanni.—Polyporus Japonicus.—Polyporus lentinoides.—Fomes robustus.—Fomes rimosus.—Fomes Niaouli.—Cyathus stercoreus.—Crucibulum vulgare.—Tylostoma poculatum.—Tylostoma McAlpinianum.—Catastoma anomalum.—Lycoperdon subincarnatum. (See Note 390, Letter 60.)—Lycoperdon capaeforme.—Bovistella Gunnii.—Bovistella Australiana.—Scleroderma Geaster.—Calvatia lilacina.

CROSWELL, E. L., Massachusetts:

Phlebia strigoso-zonatum.

DEARNESS, JOHN, Canada:

Scleroderma tenerum.—Calvatia arctica.—Xylaria polymorpha.—Xylaria castorea.—Xylaria Cornu-damae.—Xylaria corniformis var. parvispora.—Scleroderma Cepa.

DEMETRIO, C. H., Missouri:

Polyporus delectans.

FISHER, GEO. L., Texas:

Polystictus pergamenus.—Polyporus resinaceus.—Schizophyllum commune.

FORBES, C. N., Hawaii:

Lycoperdon cepaeforme.—Fomes rimosus.—Fomes applanatus.—Cyathus Poeppigii.—Pleurotus ostreatus.

GRANT, J. M., Washington:

Bovista pila.—Polyporus Oregonensis.—Tremellodon gelatinosum.—Lenzites saepiaria.—Xylaria Hypoxylon.—Aleurodiscus amorphus.—Dacryomyces aurantia.—Nectria cinnabarina.—Polystictus hirsutus.—Clavaria apiculata.—Clavaria ligula.—Gyrocephalus rufa.—Spathularia flavida.—Helvella infula.—Nidula microcarpa.—Helvella lacunosa.—Polyporus Ellisianus?—Polyporus albidus.—Tremella lutescens.—Lycoperdon perlatum.—Lenzites betulina. (See Note 403).—Polyporus adustus.—Polyporus sulphureus.—Polyporus Schweinitzii.

GRIFFITHS, DAVID, District of Columbia:

Polyporus arcularius.

KAUFFMAN, C. H., Adirondacks:

Xylaria Cornu Damae.—Thelephora terrestris.

LEEPER, B., Ohio:

Polyporus poculus. (A fine specimen. Will be illustrated in Mycological Notes.)—Polyporus fumosus.—Polyporus gilvus.

LEWIS, J. E. A., Japan:

Polyporus lucidus.

MARLOTH, R., South Africa:

Daedalea quercina.—Fomes australis.

MORRIS, GEO. E., Massachusetts:

Thelephora terrestris.—Polyporus picipes.—Scleroderma flavidum.—Geoglossum glabrum.—Geoglossum luteum.—Geoglossum nigritum.—Geoglossum hirsutum.—Geoglossum difforme.—Helvella murina.—Stereum australe. (See Note 387, Letter 60.)—Hydnum concrescens.—Hydnum fennicum.—Hydnum carnosum.—Polyporus cristatus.—Polyporus spumeus.—Xylaria polymorpha.—Xylaria Hypoxylon, var. pusilla.—Thelephora radiata.—Xylaria Cornu-Damae. (See Note 388. Letter 60.)—Polystictus Montagnei.—Thelephora palmata.—Tremellodendron pallidum.—Hydnum albonigrum.—Hydnum cyaneotinctum.—Hydnum fragile?—Hydnum mirabile.—Cordyceps ophioglossoides.—Polyporus aurantiacus.

OVERHOLTS, L. O., Pennsylvania:

Mucronella Ulmi.—Hydnum pulcherrimum.

From South Africa: Polyporus immaculatus.—Fomes yucatensis.

PERRIER DE LA BATHIE, HENRI, France:

Xylaria Hypoxylon.

PETCH, T., PROF., Ceylon:

Polyporus mesotalpae. (Will be illustrated in Mycological Notes.)—Stereum Malabarense.—Polyporus vinosus.—Stereum duriusculum.—Trametes badia.—Fomes rimosus.—Polyporus heteroporus.—Polystictus luteo-olivaceus.—Polyporus carneo-fulvus?—Polyporus cupreus.—Fomes Robinsoniae.—Polyporus udus.—Fomes conchatus.—Polyporus rigidus.—Lenzites repanda.—Lentinus Sajor caju. (See Note 404.)—Hexagona Burchelli. (See Note 405.)

RITCHIE, A. H., Jamaica:

Cordyceps sphecocephala.—Isaria Barberi.—Detailed accounts of these interesting collections will be published with illustrations in Mycological Notes.

STEVENSON, W. C., Jr., Pennsylvania:

Polyporus gilvus.—Stereum spadiceum.—Stereum fasciatum.—Polystictus hirsutus.—Poria Tulipifera.—Polystictus versicolor.—Merulius tremellosus.

SWANTON, E. W., England:

Lycoperdon piriforme.

TAYLOR, ROSE M., Michigan:

Polyporus Berkeleyi. (See Note 391, Letter 60.)—Polyporus osseus.—Fomes igniarius.—Fomes annosus.—Polyporus fuscus.

Polyporus spongia. (See Note 392, Letter 60.)

TORREND, REV. C., Brazil:

Trametes cupreo-rosea. (See Note 406.)—Daedalea stereoides.—Stereum ostreum.—Poria fulvo-umbrina.—Polyporus (Amaurodermus) Chaperi.—Fomes annosus.—Favolus dermoporus. (Will be illustrated in Mycological Notes.)—Polyporus subfulvus. (See Note 407.)—Fomes applanatus.

UMEMURA, J., Japan:

Lenzites betulina.—Hydnum albidum.—Polysaccum pisocarpium.—Calvatia rubroflava.—Polystictus subaffinis.—Paxillus Curtisii.—Lenzites subferruginea.—Polyporus semilaccatus.—Polyporus zonalis.—Polyporus substygius. (See Note 408.)—Cordyceps nutans.—Merulius castaneus. (Will be illustrated in Mycological Notes.)—Polystictus pellucidus. (Will be illustrated in Mycological Notes.)—Geaster subiculosus.—Nidula microcarpa.—Polystictus subaffinis. (Will be illustrated in Mycological Notes.)—Stereum hirsutum, form.—Lentinus strigosus, with fine photograph.—Xylaria polymorpha, with fine photograph.—Cyathus vernicosus.—Stereum bicolor.

WEIR, JAMES R., Montana:

Polyporus pubescens.—Polystictus zonatus.—Poria carbonaria?—Polyporus glomeratus.—Tremella foliacea.—Polyporus stipticus.—Panus salicinus.—Polyporus osseus.

YASUDA, A., Japan:

Polyporus caryophyllaceus.—Geaster velutinus.—Polystictus lutescens. —Polystictus Persoonii(?).—Polystictus meleagris.—Poria aurantio-tingens. (See Note 409.)—Polyporus scruposus?—Polyporus ostreiformis.—Lentinus subnudus.—Cyphella digitalis.—Polyporus pusillus.—Lachnocladium funalis. —Hydnum helvolum. (See Note 410.)—Sebacina? dendroidea.—Stereum (Hym.) tenuissimum.—Geaster saccatus.—Stereum albidum. (Will be illustrated in Mycological Notes.)—Stereum Mougeotii?—Hydnochaete Japonica. (See Note 411.)—Xylaria anisopleuron. (See Note 412.)—Fomes pinicola.—Stereum complicatum.

ZIMM, L. A., New York:

Trametes sepium.—Polystictus biformis.—Polystictus hirsutus.—Polyporus gilvus.

Note.—The specimens that were attributed in Letter 60 to S. A. Zourne, New York, were sent by L. A. Zimm. We regret the error in record.

ZUNDEL, GEO. L., Utah:

Polystictus cinnabarinus.

NOTE 396.—**Polyporus subradicatus**, from Frank H. Ames, New York. A very rare plant, and this is the first I have gotten. It can be described briefly as a large-pored Polyporus picipes. Had Murrill appreciated its relationships, he would have called it subpicipes, with which it agrees in spores, habits and texture. It has nothing whatever to do with Polyporus radicatus.

NOTE 397.—**Polyporus circinnatus**, from Frank H. Ames, New York. Growing on a stump, with the same characters as the usual plant growing in the ground, including the peculiar, hooked setae, spores, mesopodial stipe, context, color, etc., I think we shall have to so refer it, growing in an unusual habitat.

NOTE 398.—**Polyporus corruscans** (or rheades), from W. A. Archer, New Mexico. Four different collections on Mesquite and Cottonwood, evidently very common in this region. The specimen tends to the form on poplar in Europe (P. rheades), rather than to the oak form (P. corruscans). One of the specimens shows the grumose base, characteristic of this species. There is not the slightest doubt that Polyporus Texanus, as named by Murrill from this region, on Mesquite, is exactly the same thing.

NOTE 399.—**Stereum Burtianum**, from H. C. Beardslee, North Carolina. A rather rare plant. I found it last summer at Eglon, W. Va. It should be moved in my pamphlet from Section 2 to Section 4*. It is very close to Stereum Ravenelii, if not the same species.

NOTE 400.—**Sparassis crispa**, from H. C. Beardslee, North Carolina. Although this has the reputation of being a "common" plant, this is the first good specimen I have ever received. Fries' definition of Sparassis, "fertile on both sides," should be corrected, as pointed out by A. D. Cotton. The hymenium, for the greater part of the lobes, if not all, is on one side only, and there is no distinction between this genus and Stereum except that Sparassis is more fleshy. The genus should be moved from Clavariaceae to Thelephoraceae, next to Stereum, if not incorporated in Stereum.

NOTE 401.—**Polyporus**, cfr. alutaceus, from R. P. Burke, Alabama. This is not Polyporus alutaceus, but is so close I would not wish to name it from a single specimen. It agrees with alutaceus in flesh, pores and spores (small, globose, 2-3 mic. opaque), and differs only in having rugulose, ridged, and slightly tomentose surface.

NOTE 402.—**Mitremyces cinnabarinus**, from R. P. Burke, Alabama. It is worthy of special mention that this unique plant should be collected in central Alabama. Its home is the Allegheny Mountains, where it is frequent, but it does occur rarely in the East and South, but seems never to go West. There is a collection at Kew from Texas, and at Berlin one from Jalapa, Mexico. However, I have never before gotten it, excepting from the Alleghenies or the East.

NOTE 403.—**Lenzites betulina**, from J. M. Grant, Washington. Thick and suberose. This is the "type" idea of Lenzites betulina and is rather unusual. The usual collection is more thin and flaccid, viz.: Lenzites flaccida, but both are surely the same species.

NOTE 404.—**Lentinus Sajor caju**, from Prof. T. Petch, Ceylon. This, which, judging from the collections I have received, is the most frequent Lentinus in the East, is reported by Prof. Petch as rare in Ceylon. The gills are narrow and close, rather than broad and distant as stated in our Letter 47.

NOTE 405.—**Hexagona Burchelli,** from Prof. T. Petch, Ceylon. There occurs in the East a thin Hexagona of the tenuis section, that develops a reddish stain in the manner of Trametes Persoonii. It seems to be common, particularly in Africa. There is a large-pored form (8 to a cm.) and a small-pored form (about 20 to a cm.). The latter is more common in Africa and is called Hexagona discopoda, and I think was called by Fries, Hexagona tricolor. There seems to be no published name for the large-pored form, but it is found at Kew under the manuscript name Hexagona Burchelli. I have a collection from India, from G. H. Cave, and this is a fine collection from Prof. Petch. I have also from Prof. Petch two similar collections, but which I judge are different: No. 3895, very pale with small, very pale pores, and 4056 with large pores, but three times as thick context and the pores not glaucous. I have not given the latter two distinctive, specific names.

NOTE 406.—**Trametes cupreo-rosea,** from Rev. C. Torrend, Brazil. A form with round pores, also the usual form with elongated pores. Trametes cupreo-rosea can be distinguished from Trametes Feei by its large pores. Feei has minute pores.

NOTE 407.—**Polyporus subfulvus,** from Rev. C. Torrend, Brazil. Rev. Torrend finds this frequent and quite variable as to attachment. Sometimes resupinate with effused margin, sometimes with a broad attachment and sometimes petaloid with distinct, but short, lateral stipe. I included it in section Petaloides. There are abundant specimens at New York from the West Indies and one collection from Mississippi. I do not otherwise know it from our Southern States. Murrill discovered it was a "new species" and called it Polyporus ochrotinctellus.

NOTE 408.—**Polyporus substygius,** from J. Umemura, Japan. I make the spores globose 4 mic. hyaline, not colored, as I doubtfully published. The plant belongs to the gilvus alliance (Section 96), instead of Section 100.

NOTE 409.—**Poria aurantio-tingens,** from A. Yasuda, Japan. I know very few Porias, but this peculiar species I do know. It was named from Mexico, and Murrill, who incidentally discovered that it was a "new genus," informs us that its distribution is Mexico. Its distribution is probably the tropical world. I gathered it abundantly in Florida and have specimens from the Philippines, which when received were mislabeled as Poria borbonica, a quite different plant from the description. It is peculiar in the orange coloration it imparts to the wood. Berkeley probably has a name for it, but no one knows what Berkeley named in the Porias.

NOTE 410.—**Hydnum helvolum.** This is an analogue, probably a thin form of Hydnum pulcherrimum, a white, sessile plant that becomes reddish in drying. Neither Léveillé's description nor name, drawn from the dried specimen, has much application to it. Hydnum roseo-maculatum from Java is the same thing. The pilei are sessile to a reduced base.

NOTE 411.—**Hydnochaete Japonica,** from A. Yasuda, Japan. Resupinate, with no distinct margin, hard, rigid. Context thick, dark, mummy brown. Imbedded in the context are rigid, thick, deep-colored, pointed setae, similar to those found in Fomes pachyphloeus (cfr. Fig. 600, Fomes Synopsis). Surface tubercular, with small dense, rigid tubercules, paler (brown) than the context. Tubercules densely covered with setae projecting 40 to 50 mic. Spores not found, no doubt white. The genus Hydnochaete is for me an artificial genus, which could be defined as a Hymenochaete with warts, or as a colored Grandinia with setae. Only two species have been proposed for it, as follows: Hydnochaete badia, from Brazil, which is quite similar to the eye, but a thin plant with different structure. Hydnochaete ferruginea, also from Brazil, but belonging to a "new genus" (Pheaohydnochaete, teste McGinty) with colored, verrucose spores. The latter species is unknown to me.

NOTE 412.—**Xylaria anisopleuron,** from A. Yasuda, Japan. This is a tropical species, and they have never been critically worked. I have photographs of most of the types, and from the photographs the following species cannot be told apart—anisopleuron, South America, Montagne; torrulosa, South America, Spegazzini; platypoda, South America, Léveillé; Massula, Borneo, "Nobs," his "nobs" being Cesati; phosphorea, Australia, Berkeley; aspera, Malay, Cooke. The first species has large spores, recorded 10 x 35, the next two unrecorded, and the remainder small spores, about 10 mic. long. The Japanese plant has spores 8 x 28. It is probable that of these six discoveries there are two species, one with large spores, the other with small spores.

NOTE 413.—**Polystictus subpictilis,** from P. van de Bijl, South Africa. This has same color and characters as Polyporus anebus, but it is a much thinner plant with a harder surface with raised zones. To the eye it resembles Polyporus licnoides, but differs in absence of setae. In our Polyporus pamphlet, page 387, we referred it as a doubtful synonym, but on the strength of this specimen we feel that it should be recognized as a species. It was named from New Guinea.

NOTE 414.—**Ptychogaster,** from R. P. Burke, Alabama. All the plants of this "genus" are no doubt conidial derivatives of Polyporus species. Very curious, but they change so it is hard to trace them to the normal form. There is one of them, Ptychogaster albus, quite frequent in Sweden, but I never saw this one before. Cfr. The Genus Ptychogaster in Mycological Notes, Polyporoid Issue, No. 2. The spores of this specimen are very peculiar (for conidial spores). Globose, 8-10 mic., smooth, with thick walls and a guttulate center.

NOTE 415.—**Trametes Persoonii.**—"The imbricate form of this species on a thick subiculum is a common form here, but the thick, pulvinate form is rarer. Sometimes specimens are caught by the dry weather and the development arrested before they acquire the dark lower surface or the reddish stain on the top. I believe that Trametes versiformis is Trametes Persoonii, dried before the color change."—Letter from T. Petch, Ceylon.

Polystictus Persoonii or Trametes Persoonii, as it may also be well called, for it takes both thick and thin forms, is a most abundant and common species throughout the tropical world. It is so variable that I often get it under several numbers from the same collector. Naturally, it had many names and I consider the following among its aliases. Persoon, in the first and only account he gave of foreign species, had three specimens, which he called Polyporus corrugatus, scabrosus and fusco badius. Montagne decided they were all the same, and graciously proposed to call it Polyporus Persoonii. Cooke attributed this name to Fries, but I do not find where Fries used it at all. Klotzsch named it Daedalea sanguinea, and this name was mostly used by Berkeley. Klotzsch also called it Wightii (in mss.). Koenig named it cruentus (in mss.), and Montagne published it as Hexagona cruenta. Junghuhn named it indecorus and (apparently) sanguineus, the latter being changed by Léveillé to platypilus. Patouillard named it Trametes nitida. Berkeley usually referred it to Klotzsch's name (sanguinea), but also named it Moselei, tostus and aruensis. A specimen at Kew was labeled Trametes Junghuhnii by Berkeley, though where the name came from, I do not know. A good illustration of the plant was given in Bull. Soc. Myc. France under the name Daedalea conchata, it being one of Bresadola's early discoveries. Last but not least, our own Mr. Murrill, after some half hour studies in various museums of Europe, where hundreds of specimens are preserved under seventeen different names, came back to New York and discovered it was not only a "new species" (sic) (cubensis), but a "new genus" Earliella. Had he discovered on landing in New York that Broadway was a new and unfrequented street, it would have been just as true and no less absurd.

NOTE 416.—**Polyporus sulphureus.** Referring to this plant, Prof. Petch, of Ceylon, writes: "It is never yellow here, usually pallid or in dry weather ochraceous or wood color. I once gathered a brick-red piece. As a rule the pilei are thinner, flatter, and more rigid than the European plant." Polyporus sulphureus with us usually loses its color in drying. It is very rarely that I receive anything but pale, discolored specimens. I think it discolors also in situ when its gets old, and Polyporus caesarius of Fries' records, and also Peck's records, are based, I think, on these discolored specimens. If in growing there is a color distinction between the Ceylon form and the European form, they cannot be distinguished in the dried specimens.

NOTE 417.—"You state in Letter 47 that Lentinus infundibuliformis (the type) came from Central America. I thought the Ceylon species was the type." The species was published from Ceylon, hence I presume, technically, the type was from Ceylon. But I decided from the evidence at Kew that the name was first applied by Berkeley to a plant from Central America, where he got his original idea of the "species." I think it is a case like "Hymenochaete" dendroides, which he named from American material but published it from Ceylonese specimens. In the latter instance, it is immaterial, for the plants are the same. In the former case, it is not material either, for while the plants are different, both of them had been given names previously by Berkeley himself. The Ceylonese plant is the same as Berkeley named Lentinus connatus from the Philippines thirty-two years previously, and the American plant was named originally by Persoon when Berkeley was a stripling youth, which did not, however, deter Berkeley from giving it several other names when he became old enough to engage in this line of discovery.

NOTE 418.—I sent Mr. Fred J. Seaver, on request, the cotype of Aleurina Lloydiana, as named by Dr. Rehm. Mr. Seaver has advised me that he finds it the same as Peziza cestrica of Ellis' exsiccatae. I know very little about Pezizas, but it is gratifying to have these "Lloydiis" suppressed, for in my opinion none of them were ever worth the ink it took to print their names. Hypocrea Lloydii is Hypocrea alutacea or Podocrea, as it is now known. Geaster Lloydii is Geaster velutinus, as I have stated on several occasions. Tylostoma Lloydii is, as far as I know, the only Lloydii that is not a synonym, and this plant impresses me as being a sport, rather than a species. If Mr. Seaver will kindly clear out the Lloydiis in the Peziza tribe, he will, much to my gratification, pretty nearly wind up the subject.

NOTE 419.—**Citing "Authorities."** Regarding your inquiry as to what name should be placed after Polyporus pygmaeus, Polyporus ursinus, Polyporus Hookerii, my custom has been to either write no name at all or write the name of the collector. Others may do as they please. You might write "Morgan," as Farlow quoted some of my writings. You might write "Bresadola," as Miss Wakefield has recently done, or the name "McGinty" might be used. Personally, of course, I do not think the name of any person should be written, but a name given to a plant, which name should definitely designate the plant. I have no idea that many mycologists of the present day would care to adopt my views on the subject, but I have very strong conclusions in the matter, or rather, perhaps, obsessions, and in my own writings I follow my own way. I would have no quarrel with the custom of placing names after species, if honestly accomplished, were it not for the world of so-called "new species" that this procedure has induced. The history of mycology is that there has been no one interested in the study of classification and establishing "old species" since the days of Persoon and Fries. Practically all of our modern mycologists have specialized on the promulgation of new species. This, to such an extent, that the study has come to be a mere jumble of meaningless names. I may be overly intense on the subject, but I conceive that if those in the study did not give so much attention to their "new species," they would be more interested in learning to comprehend the old ones. Surely, it would be better to learn the old ones first.

But this is not the most deplorable phase of the subject. The old species that were published, illustrated, and well known years ago, new writers now refer to so-called "new genera." They omit the name of the man who published the species, and substitute their own. This, in my view, is the rankest kind of dishonesty, but the excuse is the plea that they do not wish to miscite the original author. This seems to me to be merely a scheme to steal the species, and there is an old saying that the devil can quote Scripture to his purpose. I do not take the matter seriously, however, notwithstanding my strong protest. I am more interested in getting the straight of the subject than in these schemes that passing day "scientists" invent or follow to advertise themselves.—Extract from letter to Dearness.

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